SunStar®

USER'S MANUAL

KM-1060ßL Series

KM-1060ßL

High Speed, 1-Needle, Unison Feed Lock Stitch Machine

KM-1060ßL-7

High Speed, 1-Needle, Unison Feed Lock Stitch Machine with an Automatic Thread Trimmer

KM-1062ßL

High Speed, 2-Needle, Unison Feed Lock Stitch Machine

KM-1062ßL-7

High Speed, 2-Needle, Unison Feed Lock Stitch Machine with an Automatic Thread Trimmer

1) FOR PROPER AND CONVENIENT USE OF THE MACHINE, THOROUGH READ THIS MANUAL BEFORE USE.
2) KEEP THIS MANUAL IN A SAFE PLACE FOR FUTURE REFERENCE IN CASE THE MACHINE BREAKS DOWN.

SUNSTAR MACHINERY CO., LTD.

MME-050629

1. Thank you for purchasing our product. Based on the rich expertise and experience accumulated in industrial sewing machine production, SUNSTAR will manufacture industrial sewing machines, which deliver more diverse functions, high performance, powerful operation, enhanced durability, and more sophisticated design to meet a number of user's needs.
2. Please read this user's manual thoroughly before using the machine. Make sure to properly use the machine to enjoy its full performance.
3. The specifications of the machine are subject to change, aimed to enhance product performance, without prior notice.
4. This product is designed, manufactured, and sold as an industrial sewing machine. It should not be used for other than industrial purpose.

SUNSTAR MACHINERY CO., LTD.

Contents

Safety rules for machines ---- 4

1. Specifications ---- 8
1) Sewing machine ---- 8
2) Motor ---- 8
3) Peripheral automation devices (optional) ---- 8

2. Installation ---- 9
1) Oil fan ---- 9
2) Machine head ---- 9
3) Belt tension adjuster ---- 10
4) Belt cover ---- 10
5) Program unit (thread trimming type) ---- 10
6) Air pressure-related parts and functions (thread trimming type) ---- 11
7) Thread spool stand assembly ---- 12
8) Knee-lifting pad (thread non-trimming type) ---- 12
9) Lubrication check ---- 13
10) Check for stop position of the sewing machine (thread trimming type) ---- 14
11) Back tack button (thread trimming type) ---- 15
12) Check for switch functions (thread trimming type) ---- 16

3. Operation and functions of the Servo motor ---- 17
1) Operation and control of the pedal ---- 17
2) Setting potentiometer ---- 18

4. Control and adjustment of the sewing machine ---- 19
1) Inserting a needle ---- 19
2) Inserting/separating a bobbin ---- 19
3) Winding lower thread ---- 20
4) Routing upper thread ---- 20
5) Thread tension adjustment ---- 21
6) Adjustment of the stitch length ---- 23
7) Adjustment of lifting amount of main and auxiliary presser foot ---- 24
8) Pressure adjustment of the presser foot ---- 24
9) Timing adjustment of needle and feed dog ---- 25
10) Height adjustment of feed dog ---- 26
11) Timing adjustment of needle and hook ---- 26
12) Clearance adjustment of hook and opener ---- 27
13) Position adjustment of hook needle guard ---- 28
14) Height adjustment of the auxiliary presser foot ---- 28
15) Timing adjustment of main · auxiliary presser foot and needle ---- 29
16) Adjustment of the thread trimming device ---- 30
17) Adjustment of the thread tension release ---- 35
18) Lubrication adjustment of hook ---- 36
19) Replacement of the gauge ---- 37

5. Cause of troubles and troubleshooting ---- 38
1) Sewing machine troubleshooting ---- 38

6. Table drawing ---- 40

Safety rules for machines

Safety labels in the manual are categorized into danger, warning and caution. Failure to follow the safety rules may result in physical injuries or mechanical damages. The safety labels and symbols are defined as follows.

The meaning of the safety marks

⚠ Danger
Instructions here shall be observed strictly. Otherwise, the user will be killed or suffer severe physical injuries.

⚠ Warning
Instructions here must be observed, or the user could suffer fatal or severe physical injuries.

⚠ Caution
Instructions here should be observed, or the user could face physical injuries or mechanical damages.

The meaning of marks

	This mark means a ‘must-not’
	This mark means a ‘must’ for safety
	This mark means that an electric shock may be caused if the instruction is not followed properly.

1-1) Machine mobilization Danger	**Only personnel with a full understanding of the safety rules should move the machines. The following directions must be observed when delivering the machines.** ⓐ At least two or more people should move the machine. ⓑ Before delivering the machine, thoroughly wipe off the oil on the machine to prevent accidents.
1-2) Machine installation Caution	**Physical damages such as functional difficulties or breakdowns may occur depending on installation conditions of the machines. Be sure to heed the following conditions.** ⓐ Remove the packing from top to bottom. Watch out for nails on the wooden box. ⓑ Install a climate controller and clean it regularly to prevent dust and moisture build-up from contaminating and corroding the machines. ⓒ Keep the machines away from direct sunlight. ⓓ Keep a minimum distance of 50cm between the machine at both sides and backside and the wall to secure sufficient space for repair. ⓔ Risk of explosion Do not operate the machine near areas with danger of explosion. Refrain from running the machine in the vicinity of risky places e.g., where a large quantity of aerosol-spraying products or oxygen are handled, unless specific guarantees are given otherwise for the operation of the machine to prevent explosion at such places. ⓕ The user should install an illuminator in the work area for the machine does not come supplied with any lighting apparatus due to the specific features of the machine. [Note] Details of the machine installation are laid out in No. 2 Installation.
1-3) Troubleshooting Danger	**When the machine is in need of repair, only our authorized service technicians must handle it.** ⓐ Before cleaning and repairing the machine, shut off the power supply and wait four minutes for the machine to discharge completely. ⓑ No part of the machine or specifications may be modified without prior consultation with our company. Any such modification could risk safe operation of the machine. ⓒ In case of repair, replace only with standard OEM parts from SunStar. ⓓ After repair, put safety covers back on the machine.

1-4) Machine operation

Warning

KM-1060BL Series are intended to be used for industrial purposes for sewing textiles and other similar materials. Carefully study the following instructions before operating the machine.

ⓐ Read the manual thoroughly and understand the instructions fully before use.
ⓑ Put on proper safety garments.
ⓒ While the machine is in motion, keep your hands or any part of your body away from moving parts, e.g., needle, hook, thread take-up spring and pulley, etc.
ⓓ Do not remove any form of safety covers while the machine is in use.
ⓔ Be sure to connect the ground (earth) wire.
ⓕ Before opening electric boxes such as the control box, shut down the power supply and make sure the power switch is in "off" mode.
ⓖ Stop the machine before threading the needle or checking after sewing work is finished.
ⓗ Never turn the power switch on with the pedal down.
ⓘ Do not use the machine if the cooling fan is clogged. Clean the air filter embedded in the control box at least once a week.
ⓙ Keep the machine away from strong electromagnetic fields such as high-frequency welding machines.

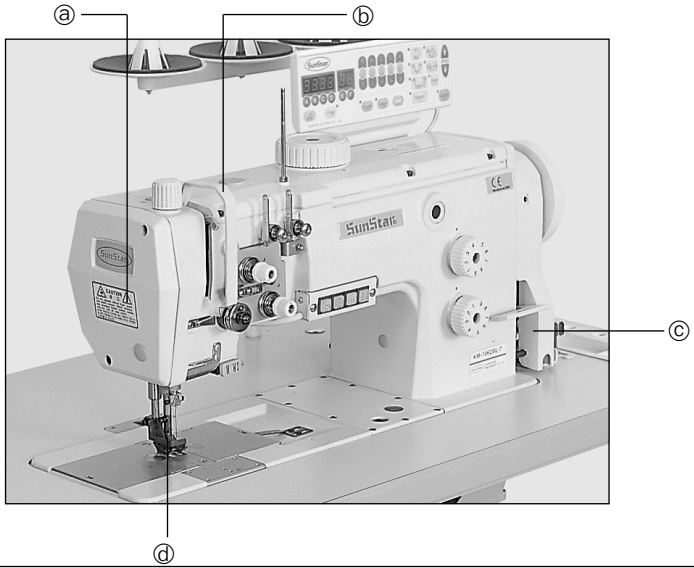
Caution

Always start the machine with safety covers in place since fingers or hands could be injured or cut off by the belt. Turn off the power switch when conducting a regular check on the machine.

1-5) Safety device

Warning

ⓐ Safety label: Safety instructions for machine operations
ⓑ Thread take-up spring cover: A device designed to prevent the human body from coming in contact with the thread take-up spring
ⓒ Belt cover: A device intended to avoid potential risks of getting hands, feet or clothes jammed by the belt
ⓓ Finger guard: A device built to keep fingers away from the needle.



1-6) Location of caution mark

"Caution" is attached on the machine for safety. Read the directions of "caution" carefully before running the machine.

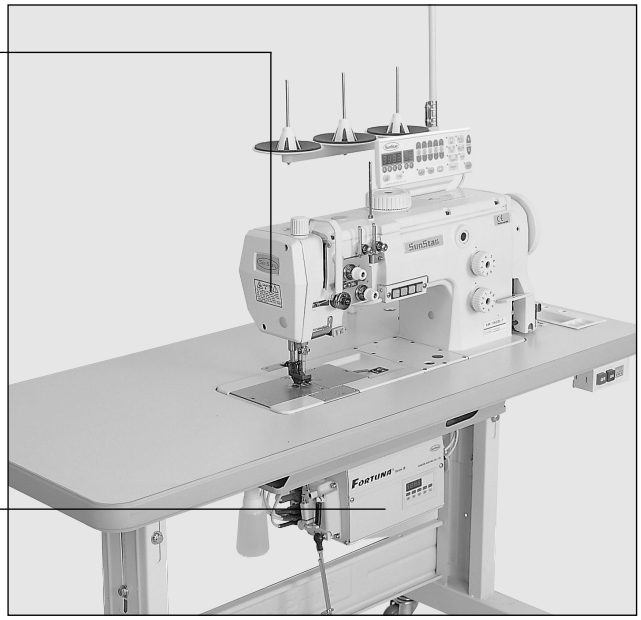
[Location of caution mark]

CAUTION
경 고

Do not operate without finger guard and safety devices. Before threading, changing bobbin and needle, cleaning etc. switch off main switch.
손가락 보호대와 안전장치 없이 작동하지 마십시오.
실, 보빈, 바늘교환시나 청소전에는 반드시 주전원의 스위치를 꺼 주십시오.

CAUTION
경 고

Hazardous voltage will cause injury.
Be sure to wait at least 360 seconds before opening this cover after turn off main switch and unplug a power cord.
고압 전류에 의해 감전될 수 있으므로 커버를 열 때는 전원을 내리고 전원 플러그를 뽑고 나서 360초간 기다린 후 여십시오.



1-7) Contents of "caution"

Notice

CAUTION
경 고

Do not operate the machine without finger guard and safety devices. Turn off the main switch before threading, changing bobbin and needle or cleaning.
손가락 보호대와 안전장치 없이 작동하지 마십시오.
실, 보빈, 바늘교환시나 청소전에는 반드시 주전원의 스위치를 꺼 주십시오.

CAUTION
경 고

High voltage will cause injury. Power off, unplug and wait at least 6 minutes before opening this cover.
고압 전류에 의해 감전될 수 있으므로 커버를 열 때는 전원을 내리고 전원 플러그를 뽑고 나서 360초간 기다린 후 여십시오.

1 Specifications

1) Sewing machine

Description	KM-1060BL-7 (trimming type)	KM-1060BL	KM-1062BL (Trimming type)	KM-1062BL
Application	Medium heavy to very heavy material			
Maximum stitch length	9mm			
Stroke distance of needle bar	33.8mm			
Lifting amount of presser foot	Maximum of 7 mm			
Needle type	DP x 17 #22 (#14~#25)			
Hook type	Horizontal hook			
Reverse sewing	Reverse button & lever	Reverse lever	Reverse button & lever	Reverse lever
Feeding device	Total feeding (needle, feed dog, upper feed presser foot)			
Lubrication	Automatic oil supply			
Specifications of bed	568 x 178 mm (working space of 300 mm)			
Power supply	1 phase 110/220 V 3 phase 220V	1 phase 110/220V 3 phase 220V/380V	1 phase 110V/220V 3 phase 220V	1 phase 110/220V 3 phase 220V/380V

Sewing speed

Description	Lifting amount of the main and sub presser foot	Sewing speed
1	1.0 mm~2.4 mm	3500spm
2	2.5mm~3.9mm	3000spm
3	4.0mm~4.7mm	2500spm
4	4.8mm~7.0mm	2000spm

Note)
1. The sewing speed automatically changes by the default value of the lifting amount of the main and sub presser foot (trimming type)
2. When using the stitch length longer than 6mm, set the sewing speed at under 2,000 spm in the program unit box.
3. Since automatic speed control is not available for non-trimming types, the sewing speed must be controlled manually at the value shown in the table above. When using the stitch length longer than 6mm, be sure to set the sewing speed at under 2,000 spm to avoid mechanical damages.

2) Motor

A. Specifications of Servo motor

Model	Voltage	Watt	Hertz
S3M55-1B	Single Phase 110V	550 W	50/60 Hz
S3M55-2B	Single Phase 220V	550 W	50/60 Hz
S3M55-3B	Triple Phase 220V	550 W	50/60 Hz

B. Specifications of clutch motor

Model	Voltage	Watt	Hertz
HEC-1706 (Single Phase)	110V / 220V	400W	50/60Hz
HEC-1705 (Triple Phase)	220V / 380V	400W	50/60Hz

3) Peripheral automation devices (optional)

Name	Model	Use	Application
Production Counter	SCOUN-1	A counting device which indicates the completed quantity on the program unit panel, including added, subtracted, corrected or remaining quantity along with other performance rates.	Basic type PU
Material edge sensor	SEDG-1 SEDG-2	A device that senses the edge or thickness of the sewing material to stop the machine without manual pedaling. Available in two types: SEDG-1 for edge sensing type and SEDG-2 for thickness sensing type.	Basic type PU
Standing pedal	SPDL-1 SPDL-2	A device needed when only one operator runs several sewing machines. Pedals for acceleration, thread trimming, presser foot and ascending are built separately. Two types, SPDL-1 and EDPL1 for fixed speed type and SPDL-2 and EDPL-2 for adjustable speed type are available.	Basic Type PU/ Option Type PU

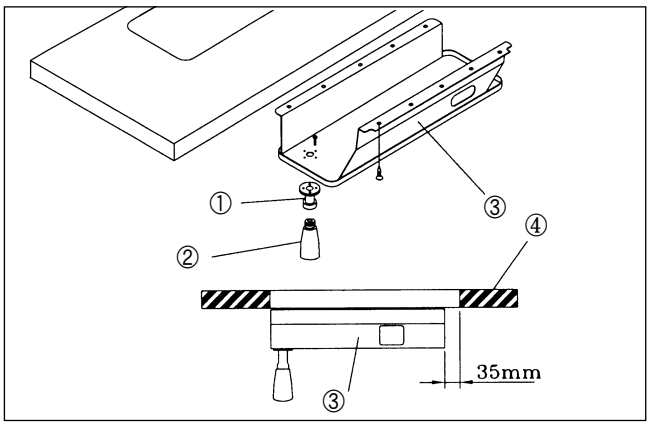
· S □□ : Servo Motor · E □□ : 470 Motor

2 Installation

Warning	
⊘	▶The machine must be installed by a trained technician only.
!	▶Any electrical wiring must be performed by a qualified technician or agent.
!	▶The machines weigh over 52 kg. As such, two or more people should carry out the installation.
⊘	▶Plug in only after the installation is complete. If the operator mistakenly steps down on the pedal with the plug in, the machine will start automatically and can cause physical injuries.
⚡	▶Connect the ground (earth) wire. An unstable connection may result in an electric shock or a malfunction.
!	▶Place the belt cover on top of the machine
!	▶Use both hands when bending the machine backward or returning it to the normal position. Using only one hand can lead to physical injuries due to the weight of the machine.

1) Oil fan

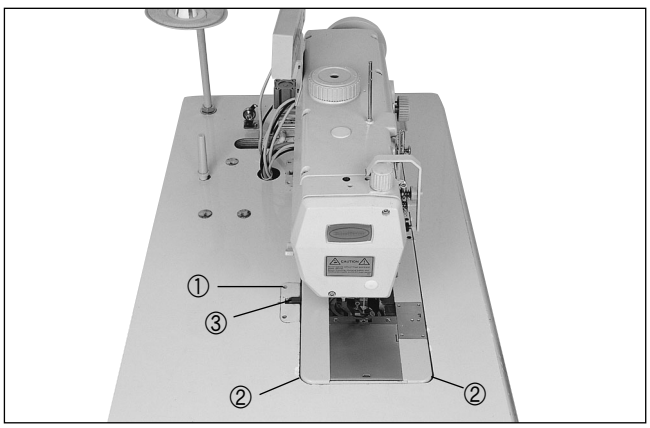
Fix oil tray① and oil tank② from the accessory box onto oil fan③ as shown in the Figure 1, then secure the oil fan under the table④ using six nails.



[Fig. 1]

2) Machine head

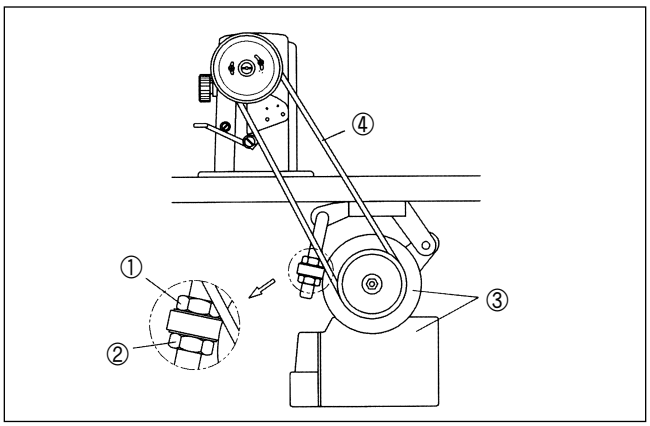
Nail the rubber cushion② onto hinge rubber① and four edges, then install the head hinge③ in the sewing machine with the head inserted in the bed.



[Fig. 2]

3) Belt tension adjuster

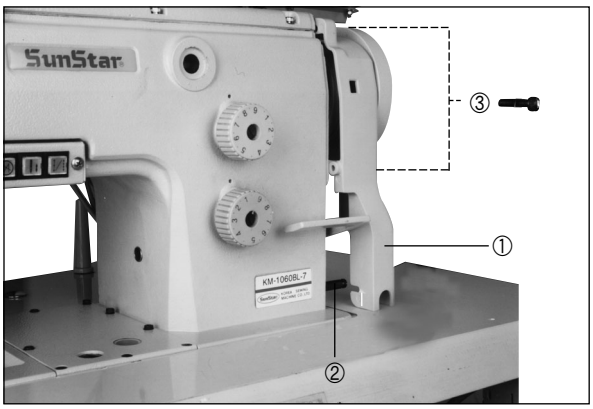
After installing the motor③, slacken both fixing nuts① and② just enough to give adequate tension to belt④. Firmly tighten the fixing nuts① and② consecutively.



[Fig. 3]

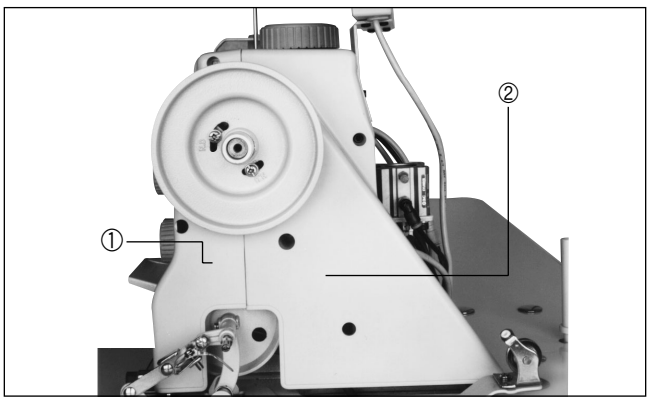
4) Belt cover

A. Insert the head groove of belt cover support screw② into the lower grooves of the belt cover "A"①. Fix the belt cover onto the machine body and the top cover with two belt cover fixing screws③.



[Fig. 4]

B. After placing the belt cover "B"② into the belt cover "A"①, secure it onto the machine body using three belt cover fixing screws.

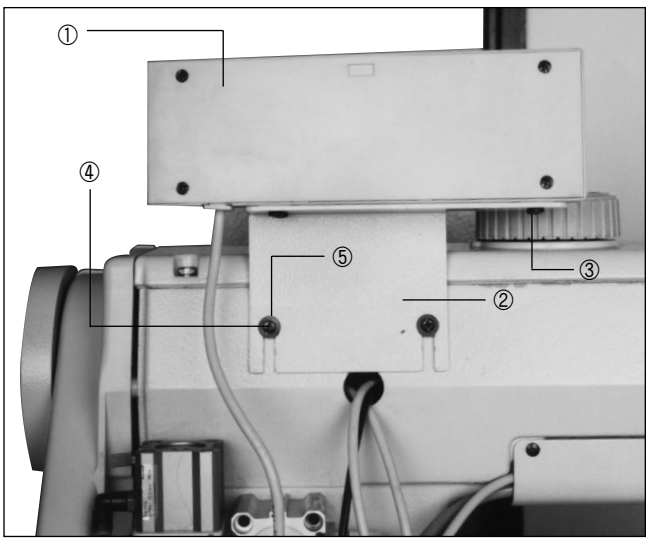


[Fig. 5]

5) Program unit (thread trimming type)

A. Use four fixing screws③ to attach the bracket② onto the program unit①.

B. Fasten the bracket② onto the machine body, using two fixing screws④ and washers⑤.



[Fig. 6]

⚠ Caution

▶When it becomes necessary to regulate the machine with the power on or with the air injected, exercise extreme caution for safety.

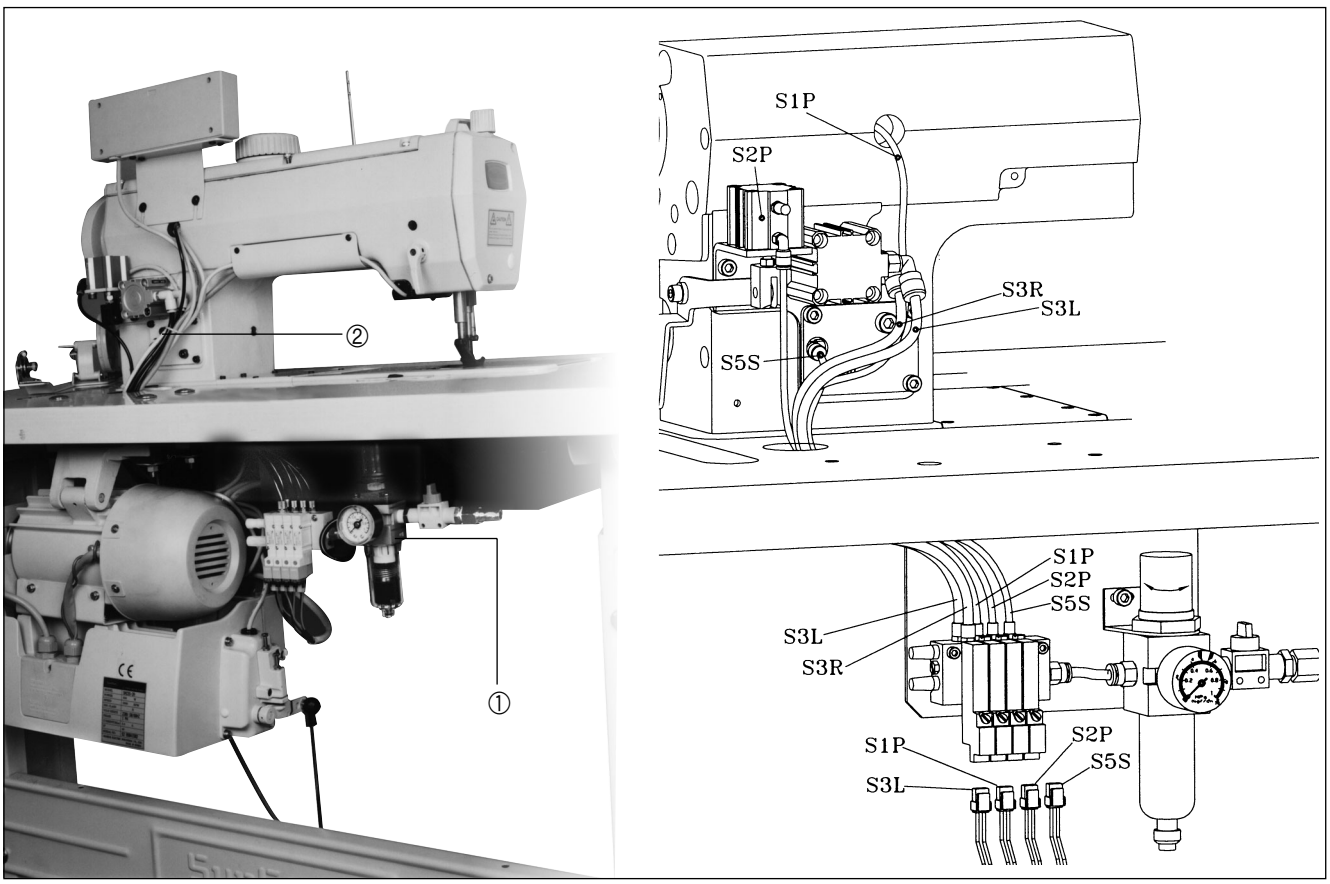
▶Set the air pressure at 0.5 Mpa.

6) Air pressure-related parts and functions (thread trimming type)

A. Installation

a) Use a screw to fix the pneumatic unit① onto the lower side of the table as illustrated in the Fig.

b) Connect five pneumatic tubes from right to left as shown in the Fig. Tie the tube with other lead lines using band clip②.



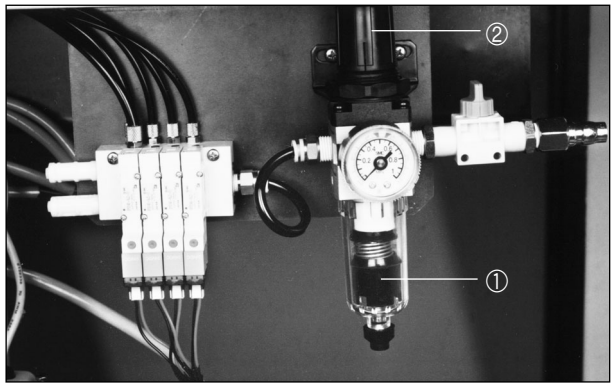
[Fig. 7]

Label mark	Cylinder	Function
S1P	Conversion cylinder of lifting amount of presser foot	Converts the lifting amount of the main and auxiliary presser foot to the maximum 7 mm in an instant
S2P	Reverse sewing cylinder	Performs reverse sewing
S3L S3R	Automatic presser foot-lifting cylinder	Raises the presser foot to as high as 16 mm off the surface of needle plate
S5S	Conversion cylinder for stitch length	Performs sewing in accordance with the settings of the lower stitch length dial when this particular cylinder begins to run among two stitch length dials of the machine

B. Adjustment of pneumatic pressure

a. Adjust the pressure by pulling knob② from pneumatic filter①.

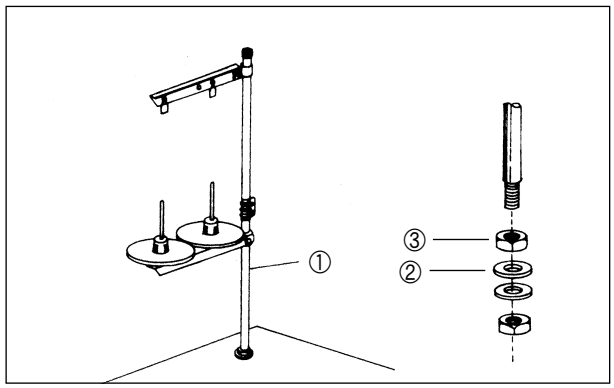
b. Control the pneumatic pressure at 0.49 MPa (5kgf/cm^2) and put the knob② back to its original position..



[Fig. 8]

7) Thread spool stand assembly

Secure the thread spool stand assembly① onto the table using washer② and nut③ on the right side.



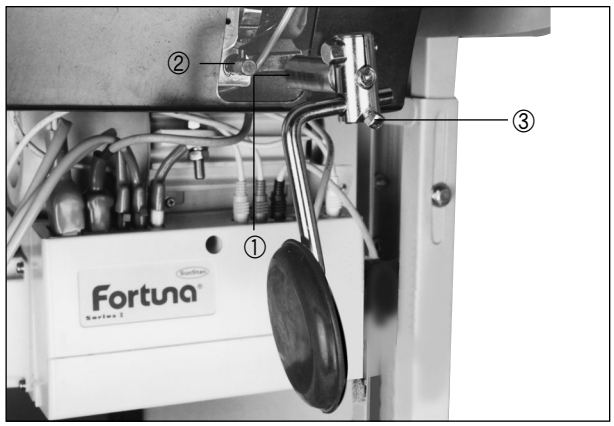
[Fig. 9]

8) Knee-lifting pad (thread non-trimming type)

A. Place the socket① of the knee-lifting pad (ass´y) from the accessory box into the knee-lifting shaft②.

B. Loosen the bolt③ to set a position comfortable for knee lifting and then re-tighten it.

> [Caution]
> Take out the knee-lifting pad (ass´y) before pushing the machine backward.



[Fig. 10]

⚠ Caution

▶ Plug in only after oil supply is finished. If the operator mistakenly steps on the pedal with the plug in, the machine will start automatically and can cause severe injuries.

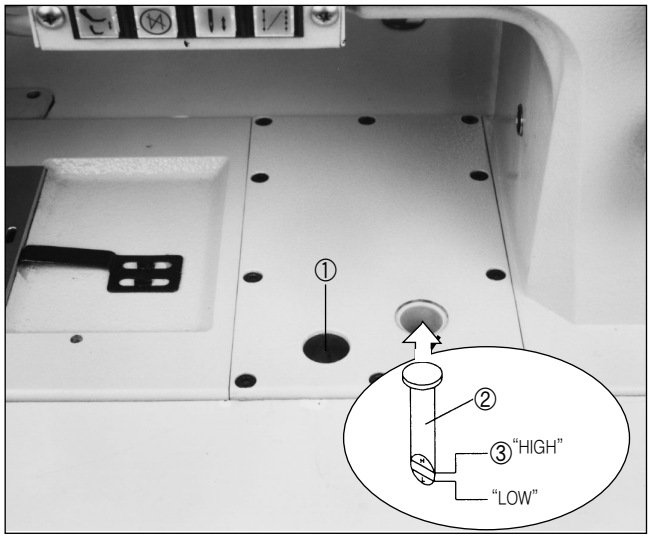
▶ When handling lubricants, wear protective glasses or gloves to avoid contact with your eyes or skin. Inflammation may be caused otherwise. Never drink lubricants since they can cause vomiting or diarrhea. Keep it out of the reach of children

▶ Operate the machine only after adding oil when the machine is being used for the first time or has been left unused for a long time.

9) Lubrication check

A. Bed part

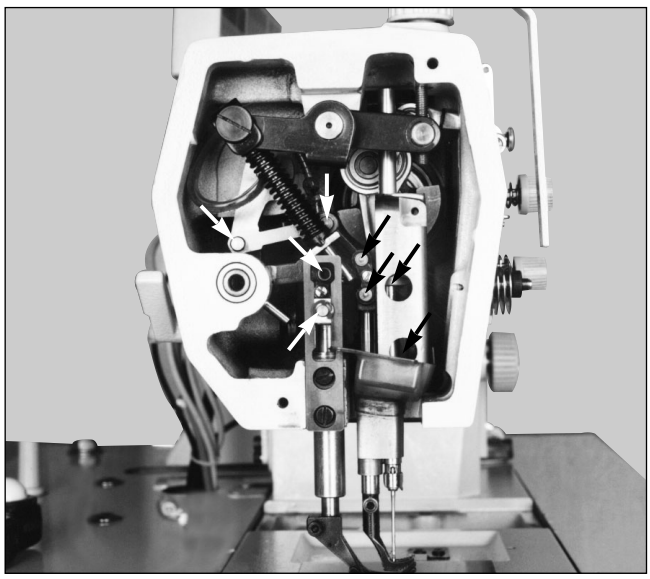
Loosen oil cap screw① to fill up the oil tank to the gauge line③ of the oil gauge②. Afterwards, tighten the screw① firmly.



[Fig. 11]

B. Face plate

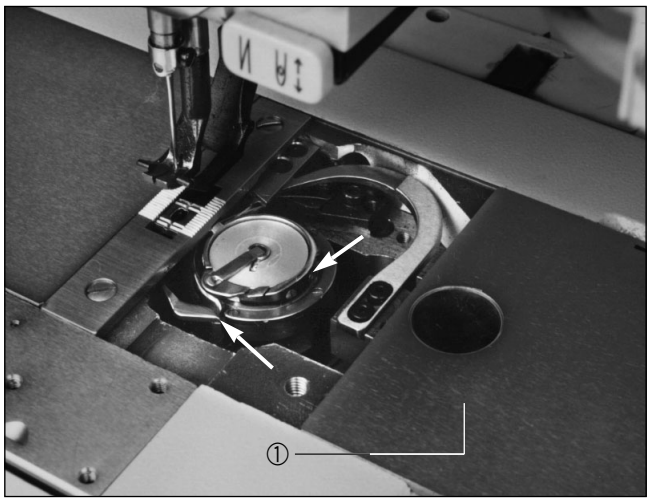
Dismantle the facet by unfastening two fixing screws of the facet and add the sewing machine oil into an arrow position. Reassemble the facet afterwards.



[Fig. 12]

C. Hook part

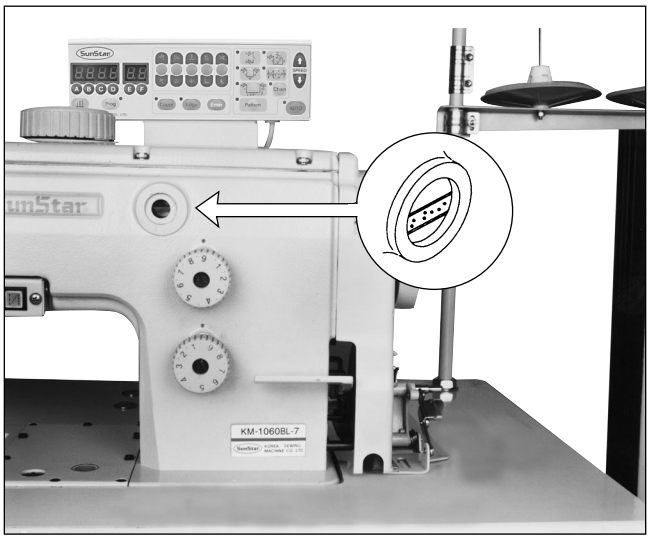
Open the slide plate (right)① to add the sewing machine oil into an arrow-pointed position. Close the slide plate① after oiling.



[Fig. 13]

D. Oil window check

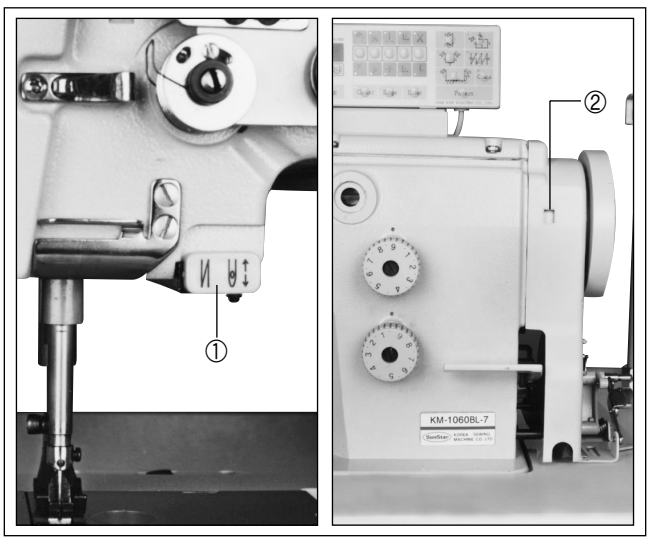
After applying oil to each friction parts, turn on the main switch and operate the machine at a low speed for five minutes to check the oil flow in the oil hose passing the oil window. The oil flow can be checked after about one minute of machine operation. To ensure the machine is maintained in an excellent condition, run the machine at 2,000 spm/minute for the first 4~5 days and at a normal speed afterwards.



[Fig. 14]

10) Check for stop position of the sewing machine (thread trimming type)

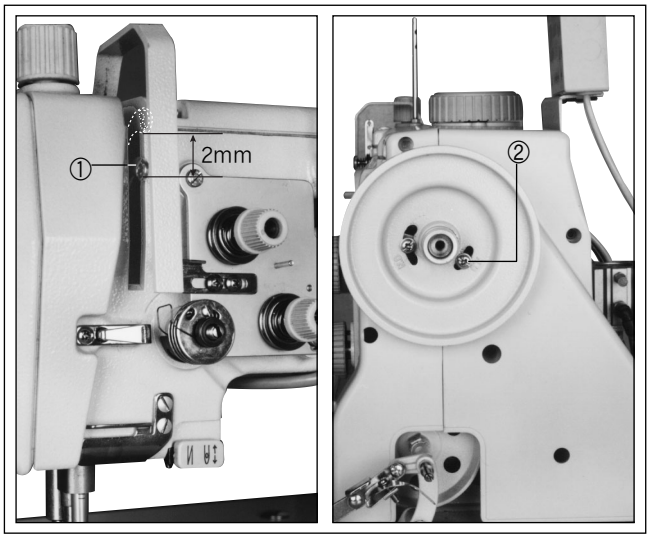
Check for the machine stop position after moving the needle up and down by pushing the reverse button①. See if the sign "B" is shown on the window② of the belt cover when the needle stops in an up position. If not, adjust the position of the magnetic holder embedded in the pulley, for trimming function can be adversely affected when the position is not adequate.



[Fig. 15]

A. Check for up-stop position of needle bar

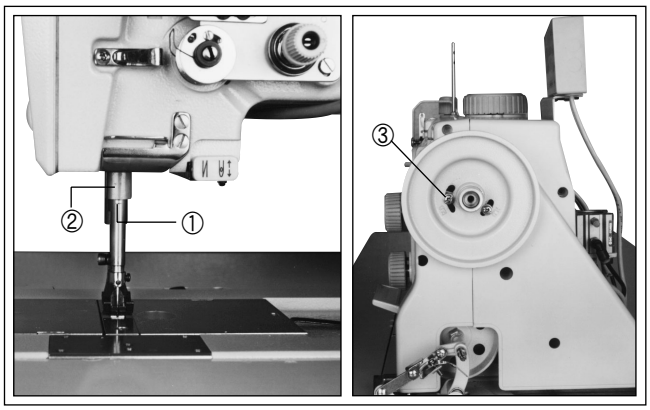
The up-stop position of needle bar is where the take-up lever① stops 2mm off of its highest position. For adjustment, move the magnetic holder② built in a carved N.U. sign of the pulley to the left and right.



[Fig. 16]

B. Check for down-stop position of needle bar

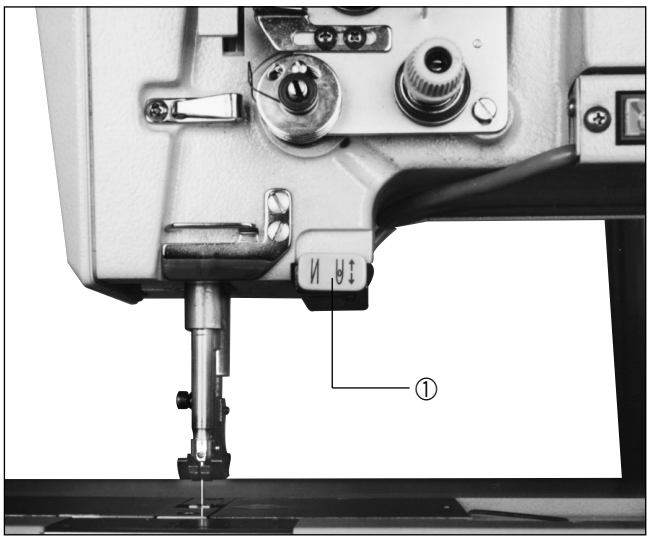
The down-stop position of needle bar is where the carved sign① of the needle bar coincides with the tip of the needle bar frame②. If the position is not suitable, move the magnetic holder③ built in a carved N.D. sign of the pulley to the left and right for adjustment.



[Fig. 17]

11) Back tack button (thread trimming type)

Pressing the back tack button or reverse button① during forward sewing will start reverse sewing immediately. When you stop the machine and restart it by stepping down on the pedal with the reverse button① already pressed down, you can perform reverse sewing from the beginning. When the machine is in a "stop" mode, you can change up-down position of the needle bar by pressing the reverse button. Lightly pressing the button once will stop the needle bar in a high position. Pressing the reverse button① twice within less than a second will stop the needle bar in a low position. In short, the button delivers two functions: one for reverse sewing and the other for converting vertical position of the needle.



[Fig. 18]

12) Check for switch functions (thread trimming type)

① : **Conversion switch for presser foot lifting level**

- When you press this switch, the light will come on. The lifting amount of the presser foot will automatically change to the maximum 7 mm regardless of what the set-up data is in the top cover dial. When you press the switch back, the light will go off and the sewing machine will run at the setting value as displayed in the top cover dial.

② : **Automatic back tack (B/T) selection switch**

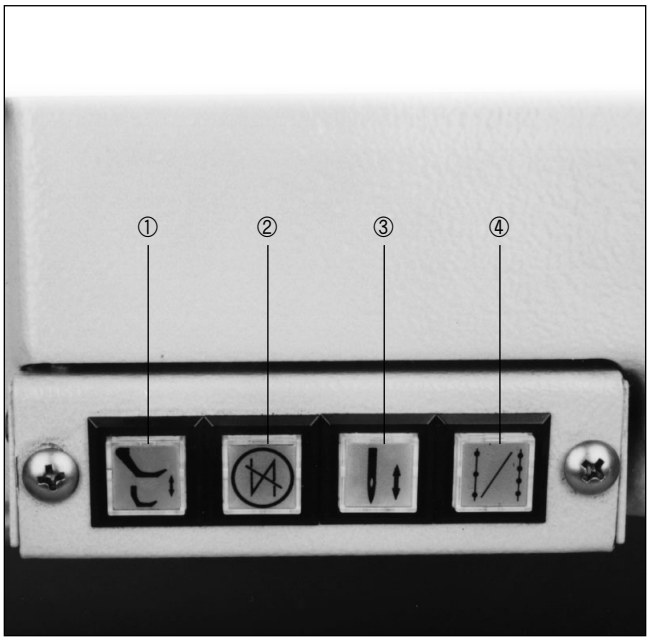
- This switch is designed to select Insert/Delete of the start and end of B/T sewing.

③ : **Switch for stopping needle bar at high position**

- designed to raise the needle bar to the highest position regardless of the stop position of the sewing machine

④ : **Conversion switch for the stitch length**

- While this switch is on, the machine will run at the setting value of the lower dial and when off, the machine will operate at the setting value of the upper dial.



[Fig. 19]

3 Operation and functions of the Servo motor

1) Operation and control of the pedal

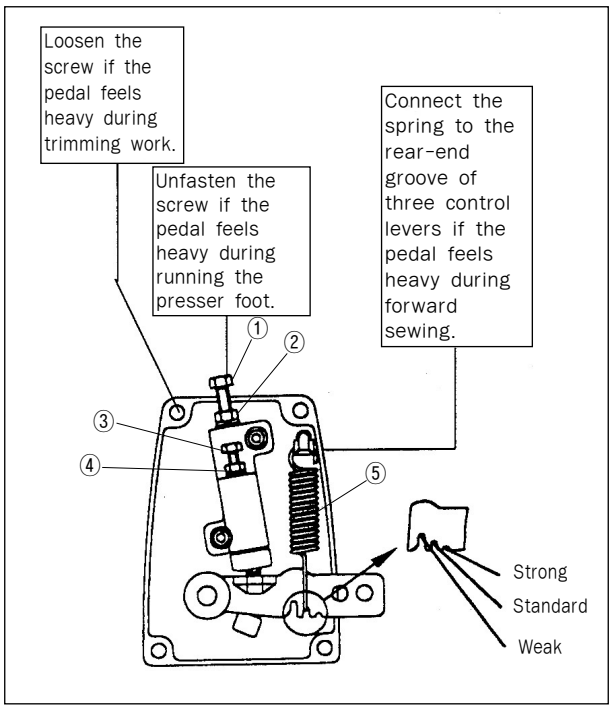
A. Loosen fixing nut② and turn pressure-adjusting screw① in a clockwise direction as shown in Figure 20. The machine will start running at a backward step 1. The pedal will become heavier when the automatic presser foot is raised. Likewise, the pedal will become lighter when the screw is shifted in a counterclockwise position. After adjusting the weight of the pedal, firmly tighten the fixing nut②.

B. Unfasten the fixing nut④ and turn the pressure-adjusting screw③ clockwise, then the machine will begin to run at a backward step 2. The pedal will become heavier when the trimming device begins to operate, and lighter when the screw is turned counterclockwise.

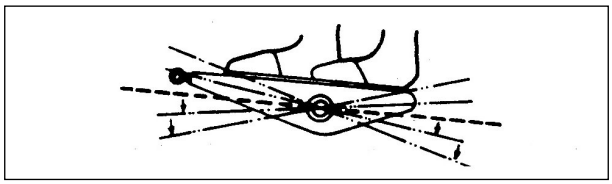
C. In adjusting the pedal pressure while sewing forward, secure the tension spring⑤ onto the left side groove to decrease pressure and onto the right side groove to increase pressure.

D. Pedal operation

You can perform various functions with the sewing machine by moving the pedal (foothold) forward and backward as illustrated below.


Loosen the screw if the pedal feels heavy during trimming work.
Unfasten the screw if the pedal feels heavy during running the presser foot.
Connect the spring to the rear-end groove of three control levers if the pedal feels heavy during forward sewing.
①
②
③
④
⑤
Strong
Standard
Weak

[Fig. 20]

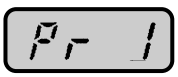
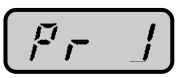


Function	Pedal position	Peal operation	Sewing machine operation
Low-speed operation		When pedal is pressed down at forward step 1	Machine rotates at a low speed
High-speed operation		When pedal is pressed down to the maximum in forward position	Machine rotates at a high speed
Neutral position		When pedal is not pressed down (Original position)	Machine stops
Presser foot lift		When pedal is pressed down at backward step 1	Presser foot is lifted
Trimming operation		When pedal is pressed down at backward step 2	Trimming device starts running and cuts the thread

※For more detailed information on operation and functions of the Servo motor, please refer to our manual Fortuna Ac Servo Motor Series III provided by SunStar.

2) Setting potentiometer

■ How to set

Sequence	How to operate	Screen display	Details
1	Turn on the power		• Sewing initial screen
2	Press PROG button, then press A button while holding down PROG button to change screen		• Initial screen for parameter group A
3	Press E and F button to move to parameter number 27		• P1 setting screen for group A item 27
4	Turn the dial for adjusting presser foot lifting amount and set it at 2.5 (mm)		• When dial is turned, the value will be displayed on □□
5	Set at 2.5 (mm) and press the ENTER button. The screen will automatically change with a buzzer sound		• P2 setting screen for Group A item 27
6	Turn the dial again to set at 4.0 (mm)		• When dial is turned, the value will appear on □□
7	Set at 4.0 (mm) and press ENTER button. The screen will automatically change with a buzzer sound		• P3 setting screen for group A item 27
8	Turn the dial once again to set at 4.8 (mm)		• When dial is turned, the value will be displayed on □□
9	Set at 4.8 (mm) and press ENTER button to change the screen with a buzzer sound		• Setting is complete
10	After setting is complete, push PROG button to go back to the initial screen		• Sewing initial screen

▶ When setting each step of P1, P2 and P3, be sure to press PROG button to save the set value. Otherwise, the set value will not be saved.
▶ The ▸▸ sign from screen 3 to 8 in the above table may vary to some degree depending on the location of the installed potentiometer.
▶ If you turn off the power before completing step 9, you will have to start over again.
▶ The set value of the potentiometer will be erased if you initialize. Initialize only when it is necessary. Remember that you have to reset the potentiometer after initialization.
▶ If the potentiometer connector is not linked or the cable is cut, OV will be displayed on the screen.

■ Relation between presser foot lifting amount and maximum speed of the sewing machine

Presser foot lifting amount	Maximum speed of the sewing machine
1.0 - 2.5 mm	3500 spm
2.5 - 4.0 mm	3000 spm
4.0 - 4.8 mm	2500 spm
4.8 - 7.0 mm	2000 spm (adjustable from group A item 20)

4 Control and adjustment of the sewing machine

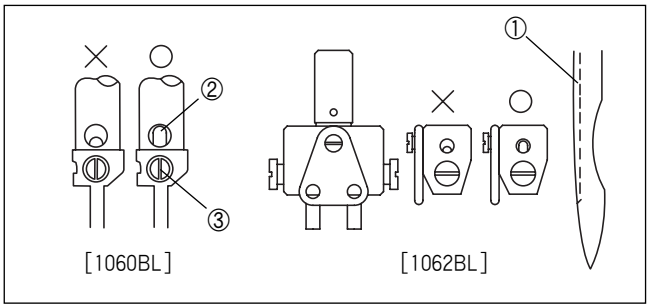
⚠ Caution

▶Always turn off the power when mounting a needle. If the operator mistakenly steps on the pedal while the power is on, the machine will start automatically and can result in physical injuries.

▶When using clutch motor, be aware that the motor will continue to rotate for a while even after the power is switched off due to inertia. Start to work on the sewing machine only after the motor has come to a complete stop.

1) Inserting a needle

With the needle groove① facing left as shown in the [Figure 21], insert the needle tip into the upper end of stopper hole② and fasten the needle with clamp screw③.

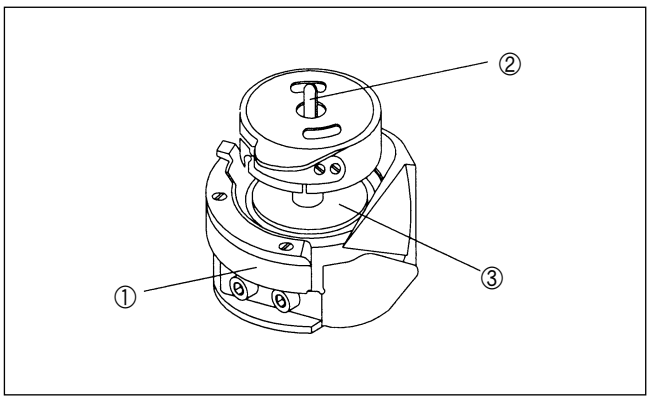


[Fig. 21]

2) Inserting/separating a bobbin

A. How to separate

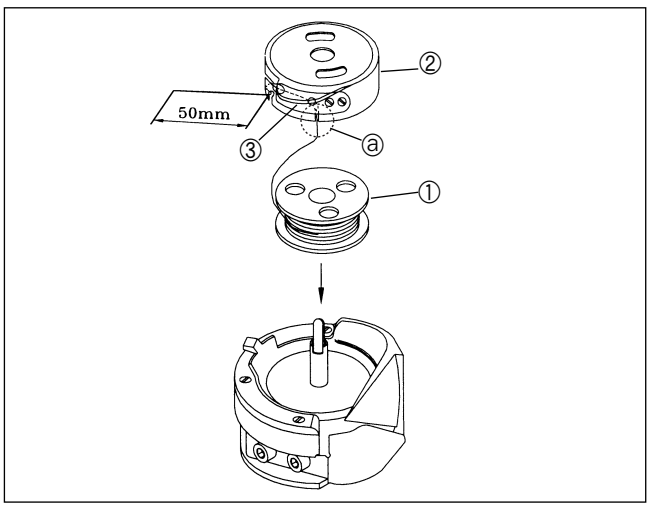
Hold the needle at the highest position. Press the slide plate stopper, open the slide plate and hold up the bobbin case holder ② of hook ① to take out the bobbin③.



[Fig. 22]

B. How to insert

IInsert thread-winded bobbin① into the bobbin case②. Pull the lower thread out by dropping it through the thread path ⓐ and the bottom of the shaft tension spring plate③. Let the lower thread hang about 50 mm. Place back the bobbin by referring to How to separate, starting from end to beginning.



[Fig. 23]

3) Winding lower thread

A. How to wind the lower thread

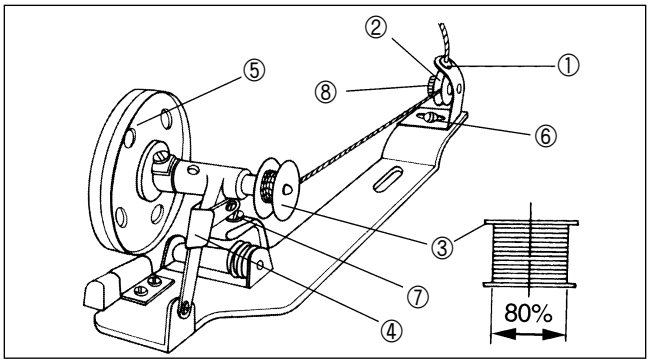
a) Turn the thread from the backside of the tension adjusting plate② to the front through the hole①.

b) Bring the thread towards the bobbin③ and wind it 5~6 times in a clockwise direction, starting from the bottom up.

c) Push the lever④ to make the pulley⑤ touch the V-belt and start the machine

d) When the lower thread is winded up completely on the bobbin, the pulley⑤ will automatically separate from the V-belt.

e) The adequate quantity of lower thread winding is about 80%.



[Fig. 24]

B. Winding adjustment for lower thread

a) If the lower thread winds irregularly, loosen the screw⑥ to move it left and right. Fasten it back after adjustment.

b) Winding quantity of the lower thread can be adjusted by turning the adjusting screw⑦. Move the screw clockwise for more quantity and counterclockwise for less quantity.

c) As for adjusting the tension of the lower thread winded on the bobbin, turn the nut⑧ clockwise direction to increase the tension and counterclockwise to reduce the tension.

⚠ Caution

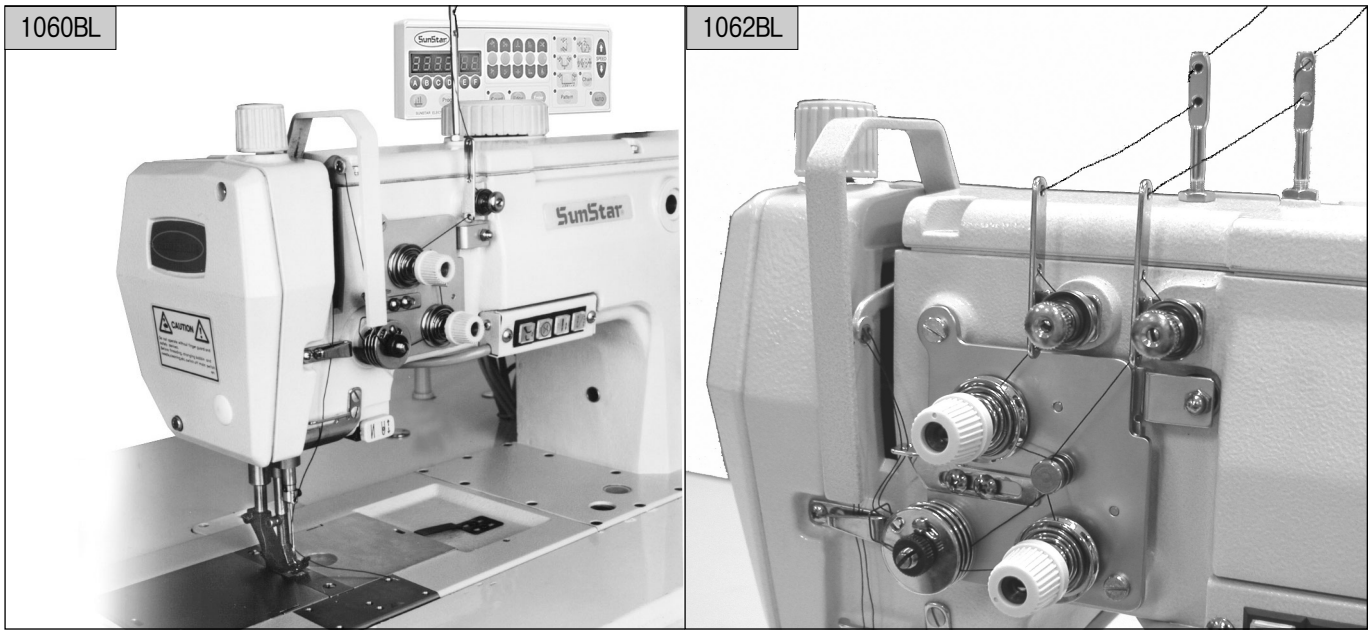
▶Turn off the power switch when routing the upper thread. If the operator mistakenly presses down on the pedal while switched on, the machine will start automatically and can cause physical injuries.

▶When using the clutch motor, be aware that the motor will continue to rotate for a while after the power is switched off. Start to work on the sewing machine only after the motor has come to a complete stop.

4) Routing upper thread

After placing the take-up lever in its highest position, hang the upper thread as shown in the figure.

-For initial sewing, the suitable length of the upper thread tail from the needle hole is about 50 mm.



[Fig. 25]

⚠ Caution

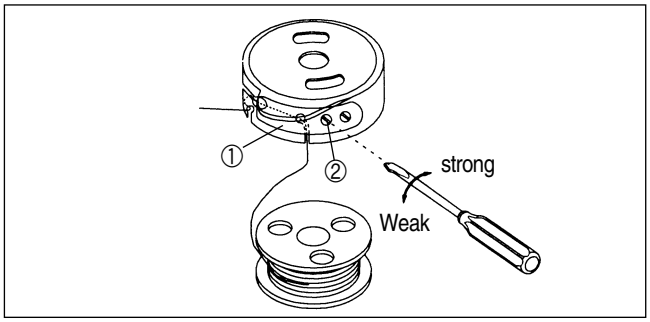
▶Turn off the power when adjusting the lower thread tension. If the operator mistakenly steps down on the pedal while switched on, the machine will start automatically and can cause physical injuries.

▶When using the clutch motor, be aware that the motor will continue to rotate for a while after the power is switched off. Start to work only after the motor has come to a complete stop.

5) Thread tension adjustment

A. Tension adjustment of the lower thread

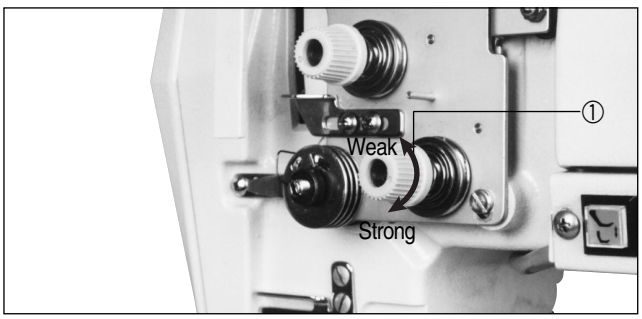
If you turn screw② on the spring plate① mounted in hook in a clockwise direction, the lower thread tension will become stronger and when turned in a counterclockwise direction, weaker.



[Fig. 26]

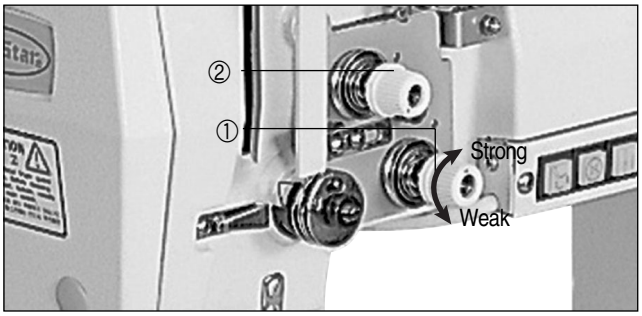
B. Tension adjustment of the upper thread

a. Tension adjustment of thread-adjusting device
(for 1060 BL type)
As shown in [Figure 27], tension will become heavier when tension-adjusting nut① of the thread-adjusting device is turned clockwise, and lighter when turned counterclockwise.



[Fig. 27]

b. Tension adjustment of thread-adjusting device
(for 1062 BL type)
As indicated in [Figure 28], tension of the left thread will become stronger when tension-adjusting nut① of the thread-adjusting device is turned clockwise, and weaker when turned counterclockwise. If you turn the tension-adjusting nut② clockwise, tension of the right thread will become stronger, and weaker when turned counterclockwise.

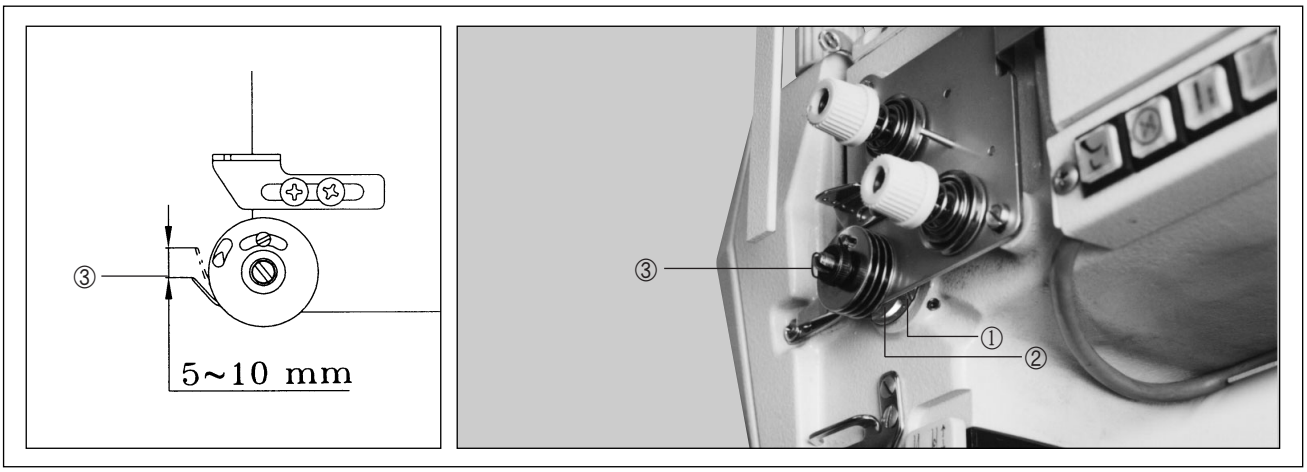


[Fig. 28]

c) Adjustment of the take-up lever spring

If you loosen the stopper clamp screw① and turn the take-up lever spring stopper② counterclockwise as shown in [Figure 29], the moving range of the take-up lever spring③ will become larger, and when turned clockwise, smaller.

※ The standard moving range of the take-up lever spring is 5~10 mm.



[Fig. 29]

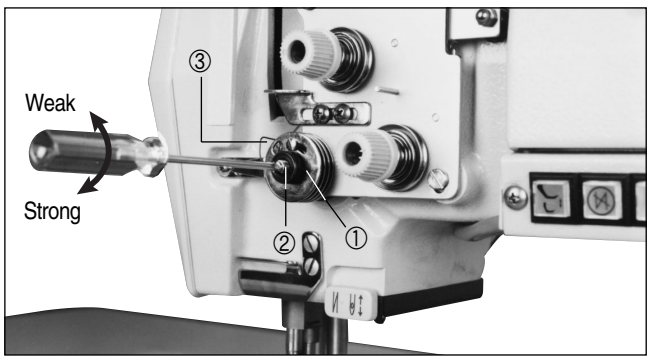
d) Tension adjustment of the take-up lever spring

If you unfasten the nut① in the thread-adjusting device shaft and turn it clockwise at the face groove of the thread-adjusting device shaft② using a screwdriver, the tension of the take-up lever spring③ will become stronger, and weaker when turned counterclockwise.

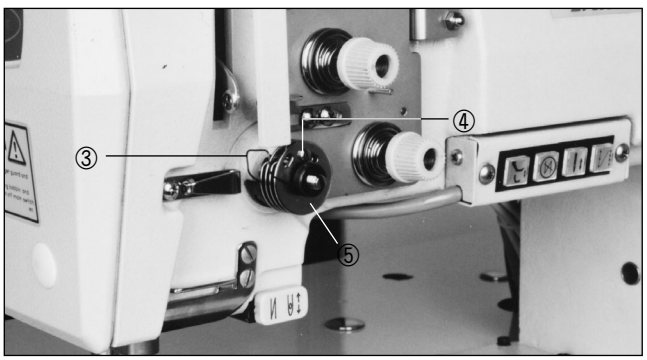
e) Timing adjustment of the take-up lever spring

If you loosen the stopper screw ④ and move the guide plate⑤ of the take-up lever spring in a clockwise direction, the operating timing of the take-up lever spring③ will become faster, and slower when turned counterclockwise.

※ The standard operating timing of the take-up lever spring is when the stopper screw④ comes to position at the center of the guide plate ⑤.



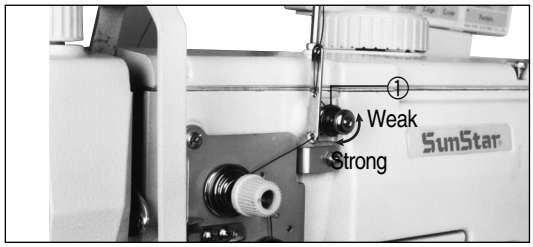
[Fig. 30]



[Fig. 31]

f) Tension adjustment of the auxiliary thread adjustment device (for 1060 BL)

If you turn the adjusting nut① of the auxiliary thread-adjusting device as displayed in [Figure 32] in a clockwise direction, the needle will have a shorter length thread left after trimming, and a longer length thread left when turned in a counterclockwise direction. 50~60 mm is the most appropriate length of the upper thread tail left in the needle after trimming.



[Fig. 32]

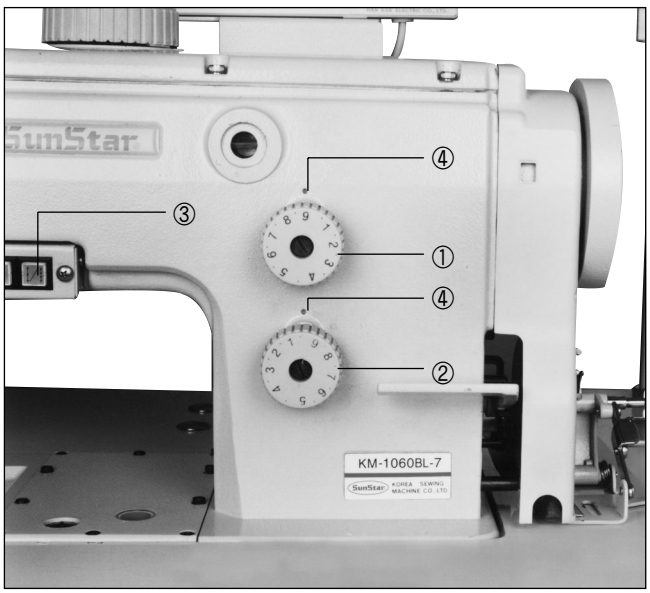
g) Tension adjustment of auxiliary thread adjustment device (for 1062 BL)

As illustrated in [Figure 33], you can adjust the remaining length of the upper thread in the needle after trimming by controlling the adjusting nut of the auxiliary thread-adjusting device
(left①, right ②)

[Fig. 33]

6) Adjustment of the stitch length

Adjusting dial① and ② designed to control the stitch length can be set up with two different lengths, and change the stitch length whenever switch③ is pressed down. After pressing down switch ③ to turn the switch on, the sewing machine will carry out sewing at the stitch length as set on dial②. When pressing down switch ③ again to turn the switch off, the machine will start sewing at the stitch length as set on dial①. Set the desired stitch length to a carved sign ④.



[Fig. 34]

Caution

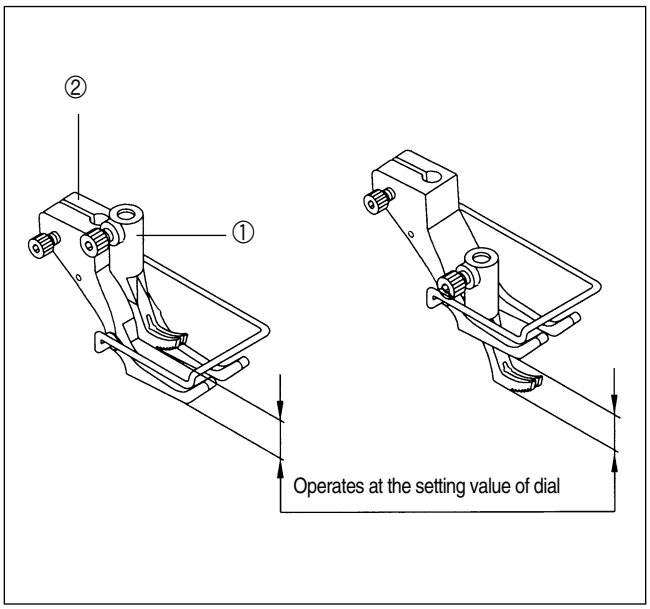
▶The value set on the stitch length dial② should always be smaller than that of dial①. Nonetheless, if you force turning the dial to set the value of dial② to be greater than that of dial①, the machine can be severely damaged.

▶The function of the stitch length dial② is available only for trimming type machines. Stitch length dial① is installed for non-trimming types.

7) Adjustment of lifting amount of the main and auxiliary presser foot

The lifting level of the main presser foot① and auxiliary presser foot② can be adjusted from 1 to 7 mm by the upper lid dial③. If you turn the upper lid dial ③ around to a carved sign④ so that the figure on the dial faces the carved sign, the main presser foot① and auxiliary presser foot② will start a mutual crossing movement as much as the set figure indicates. For trimming types only, when the light comes on by pressing the switch⑤ on the arm, the mutual crossing movement will change to the maximum value of 7 mm regardless of the set value indicated on the dial③. When the light goes off by repressing the switch, the movement will change automatically to the set value on the dial. .

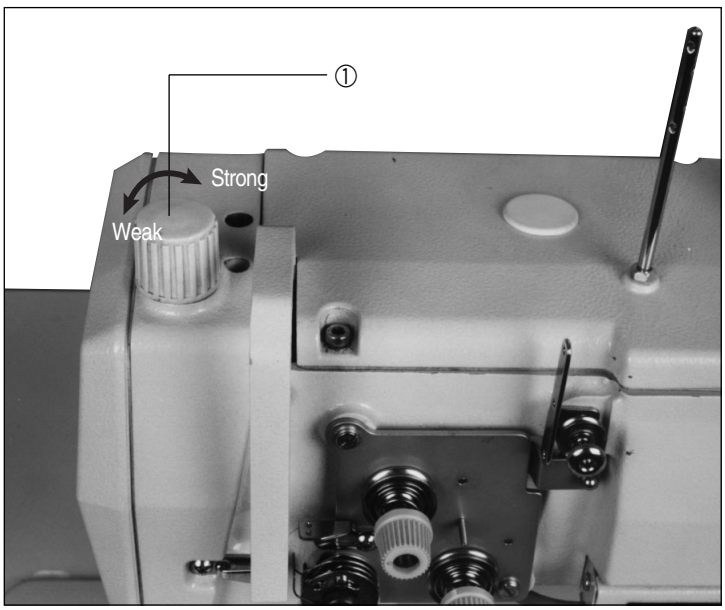
[Fig. 35]



[Fig. 36]

8) Pressure adjustment of the presser foot

If you turn the dial① on the upper part of the faceplate in a clockwise direction, the pressure of the auxiliary presser foot will increase, and decrease if turned counterclockwise.



[Fig. 37]

⚠ Caution

▶After disassembling and adjusting a safety device, always place it back to the original position and check whether it functions as intended.

▶Use both hands when pushing the machine backward or returning it to the original position. Due to the weight of the machine, your hand can get stuck in the machine if you should slip.

▶When adjusting the machine with the switch on, be sure to pay extreme caution.

▶Only trained engineers must perform troubleshooting or inspection of the machine.

▶For electrical repair or inspection, consult with qualified technicians or agent.

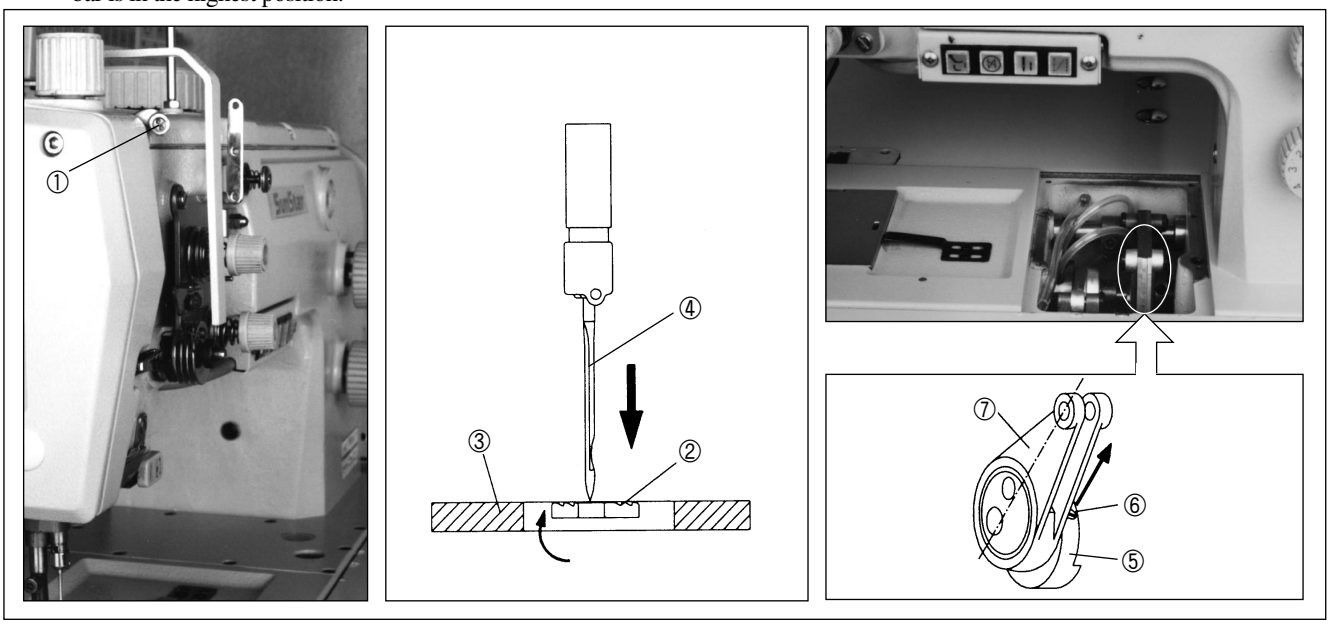
9) Timing adjustment of needle and feed dog

Set the stitch length to the maximum and place the thread take-up lever① in the highest position. (As a standard, a carved sign "C" will appear on the belt cover window and the feed dog② will rise to touch the surface of needle plate③. The needle tip④ will move down to touch the needle plate③.) If the position is not correct, make the adjustment as indicated in the following.

A. Disassemble the bed cover.

B. Loosen the fixing screw of the lower feed cam⑤ to control the position of the feed dog and fasten the screw firmly afterwards.

※ Normally, the No. 1 screw⑥ of the lower feed cam faces the centerline of the lower feed cam connecting rod⑦ when the needle bar is in the highest position.



[Fig. 38]

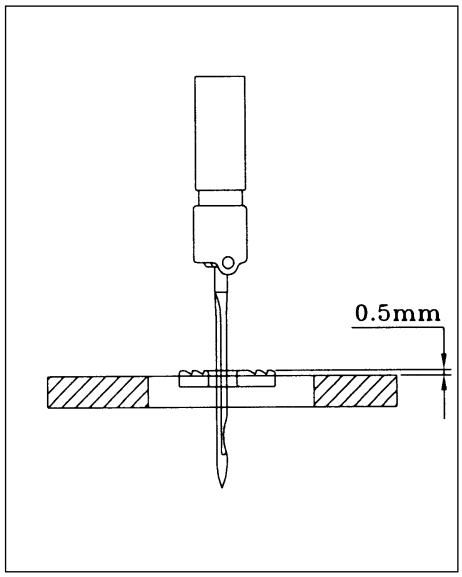
10) Height adjustment of feed dog

Set the stitch length to a minimum and put the feed dog in the highest position. The needle bar will come down to the lowest position and the feed dog must be raised 0.5 mm off of the needle plate. If the position is not suitable, make the height adjustment as indicated below.

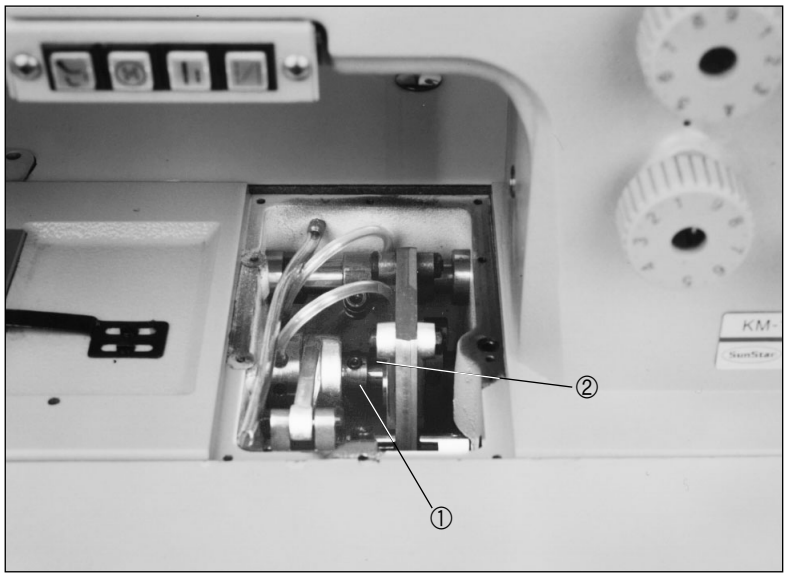
A. Disassemble the bed cover

B. Unfasten the fixing screw of the lower feed cam①, adjust the position and fasten back the screw tightly.

※ Normally, a carved sign② of the lower feed cam heads up perpendicularly with the needle bar in its lowest position.



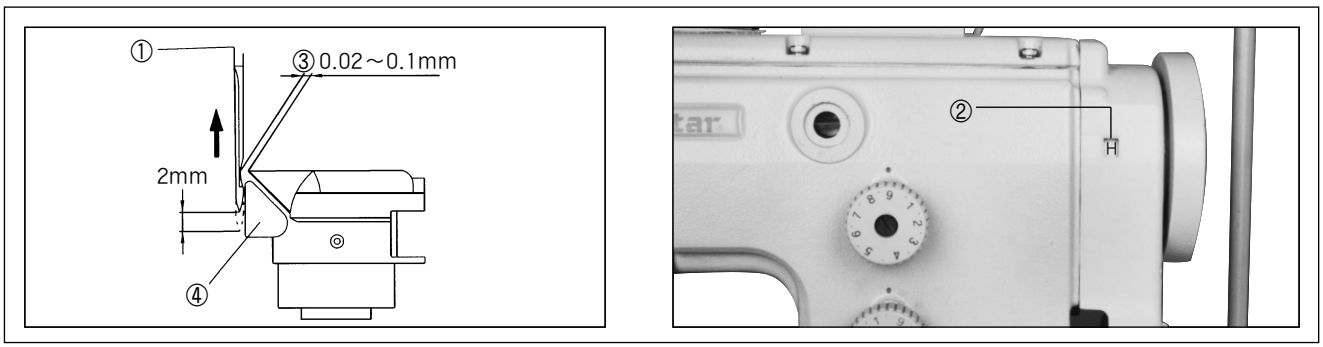
[Fig. 39]



[Fig. 40]

11) Timing adjustment of needle and hook

Set the stitch length to a minimum and place the needle 2 mm off of the lowest position. A carved sign "H" will appear on the belt cover window② and hook tip③ will come to the center of the needle. The appropriate clearance between the needle groove and the shaft tip③ is 0.02~0.1 mm. At this time, the needle guard④ of the hook must not come in contact with the needle.

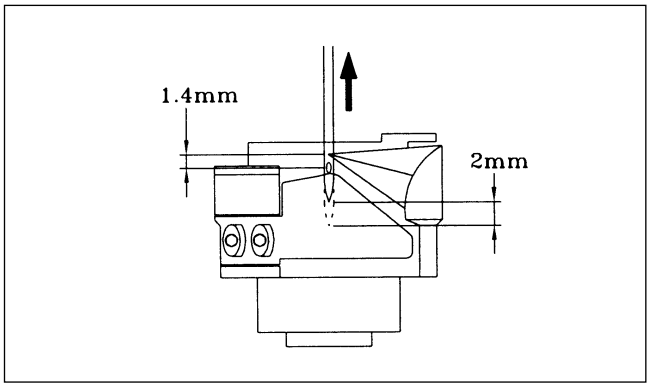


[Fig. 41]

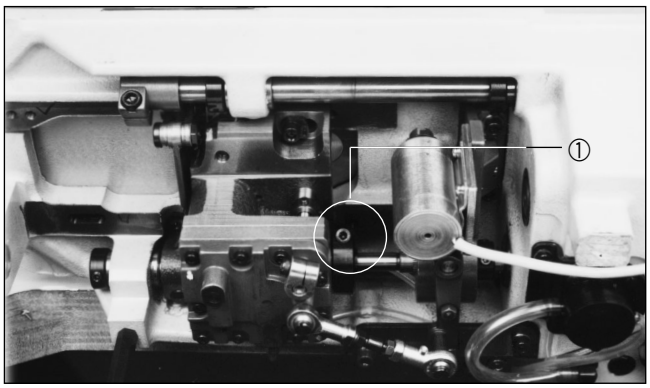
A. Timing adjustment of needle and hook

Set the stitch length to a minimum for 1060 BL and to 6 mm for 1062 BL, and then disassemble the needle plate. After pushing back the machine, loosen the fixing screw① of the lower shaft collar and place the needle to ascend 2 mm off of the lowest position. Adjust the hook tip to come to the center of the needle and firmly fasten the fixing screw①.

※ At this time, the clearance between the hook tip and the needle eye is 1.4 mm.



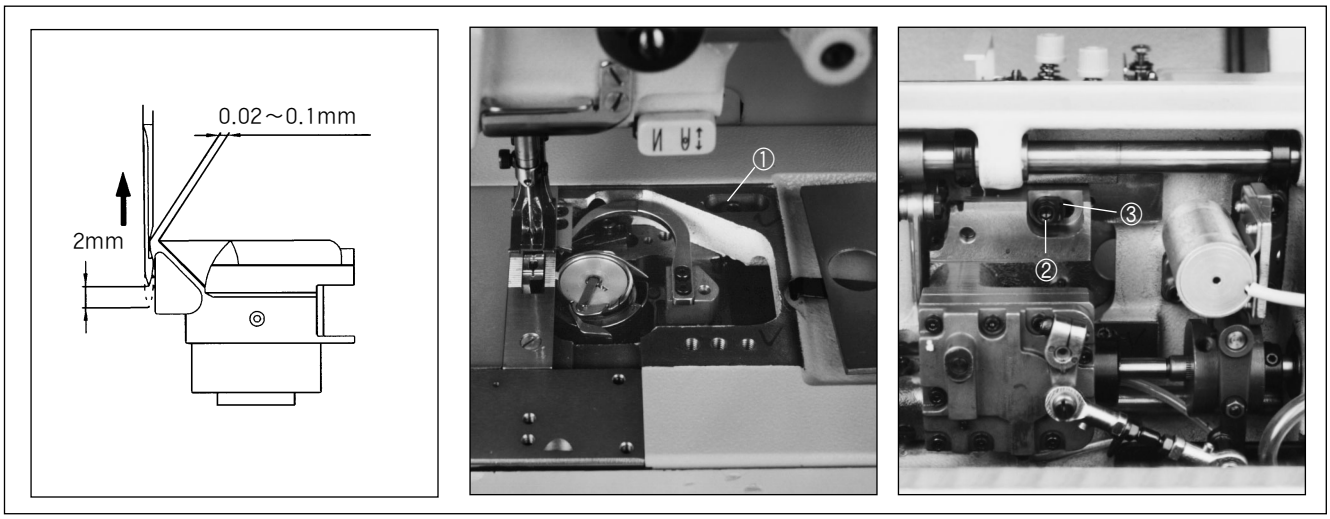
[Fig. 42]



[Fig. 43]

B. Clearance adjustment between needle and hook

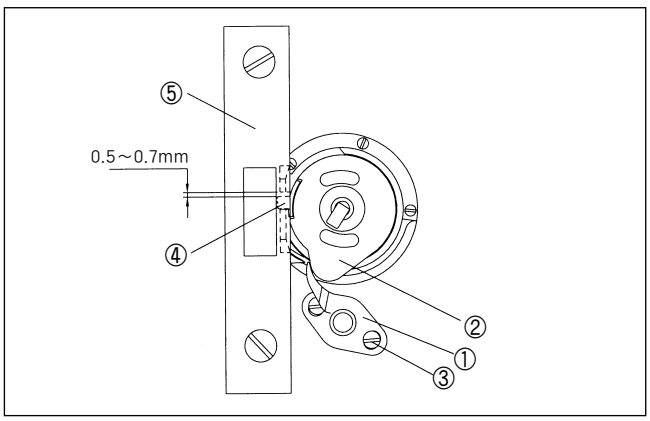
Unfasten the fixing screw ① and ② of the hook base and control the position of the hook base by turning the adjusting collar③ of the hook base to the left and right. Set the clearance between the hook tip and needle at around 0.02~0.1 mm and tighten the fixing screw ① and ② of the hook base.



[Fig. 44]

12) Clearance adjustment of hook and opener

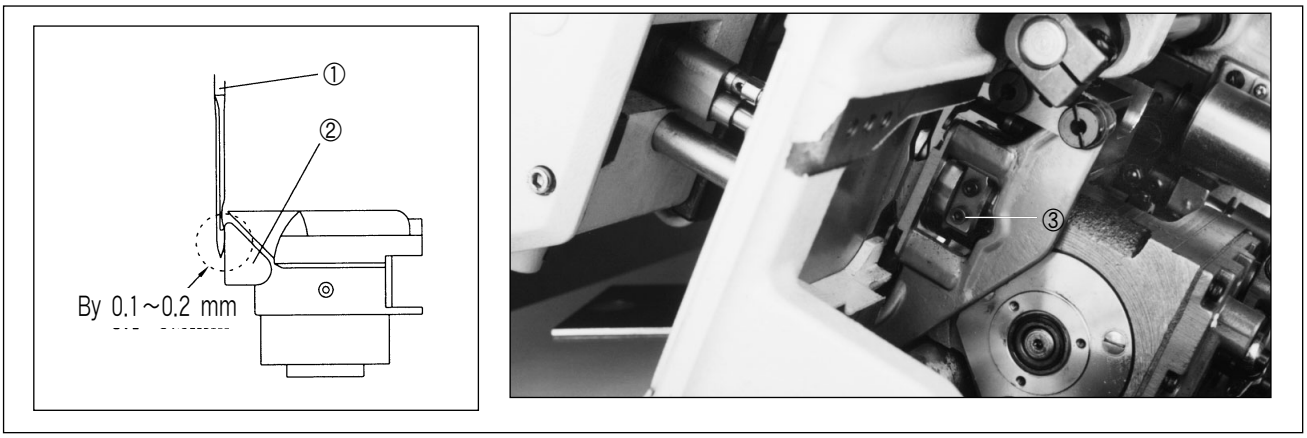
Bring the opener① to the hook② as close as possible and loosen the fixing screw③ of the opener. Adjust the opener manually to allow 0.5~0.7 mm of clearance between the hook stopper④ and the groove of the needle plate⑤, and tighten the fixing screw③ of the opener.



[Fig. 45]

13) Position adjustment of hook needle guard

After moving the needle bar to the lowest position, check if the needle① touches the needle guard② by about 0.1~0.2 mm. For adjustment, turn the fixing screw③ of the needle guard in a clockwise direction to push the needle guard② away from the needle, and turn it counterclockwise to pull the needle guard② closer to the needle.



[Fig. 46]

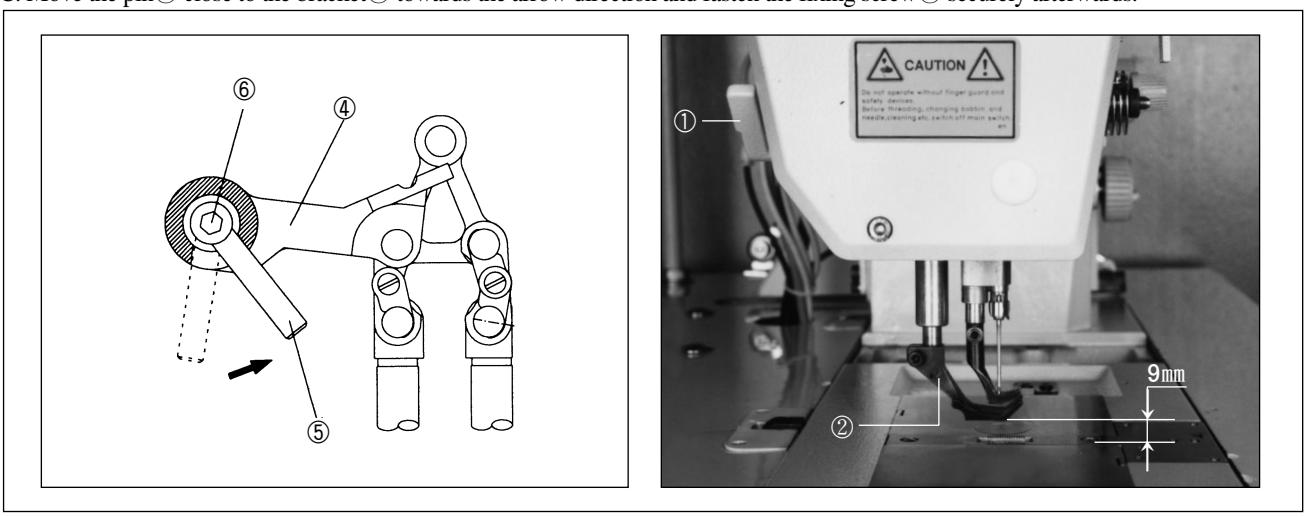
14) Height adjustment of the auxiliary presser foot

Normally the auxiliary presser foot② lifts 9 mm off the needle plate when the pressure bar lifter① is raised.

A. Raise the pressure bar lifter①, unfasten the pressure-adjusting screw③ and bring up the auxiliary presser foot② 9 mm off the surface of the needle plate.

B. Loosen the fixing screw⑥ of the pin⑤ attached onto the pressure bar lifter bracket④.

C. Move the pin⑤ close to the bracket④ towards the arrow direction and fasten the fixing screw⑥ securely afterwards.

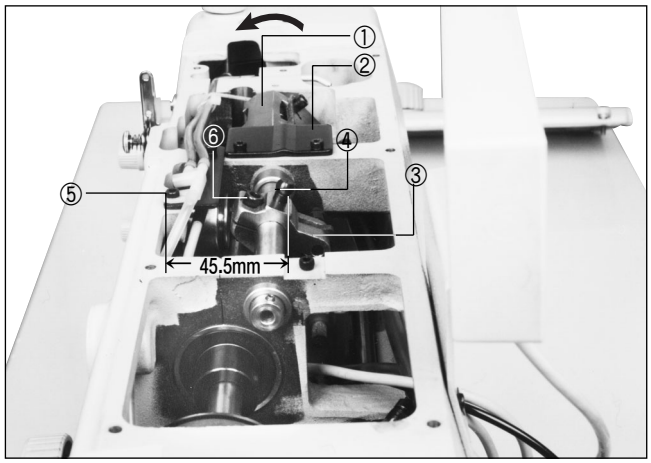


[Fig. 47]

15) Timing adjustment of the main · auxiliary presser foot and needle

A. Adjustment of maximum ascending amount of the main · auxiliary presser foot

The maximum lifting quantity of the main and auxiliary presser foot is 7 mm. First, set the upper lid dial at "1" and take out the upper lid. Move the body① of a climb device towards the arrow direction until it reaches the stopper plate②. At this time, set the clearance between the outer round of the pin④ head, which is inserted into crank③ and outer round of the screw⑤ at 45.5 mm. Tighten the crank clamp screw⑥. After adjustment, reassemble the upper lid with the dial set at "1".

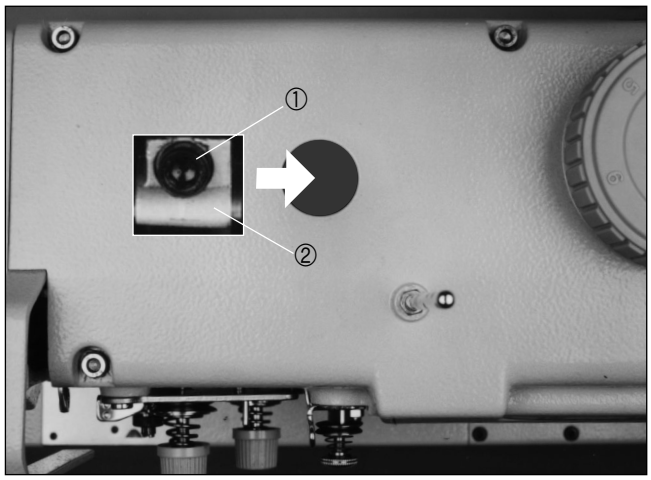


[Fig. 48]

B. Adjustment of lifting amount of the main · auxiliary presser foot

The height of lifting amount of the main · auxiliary presser foot must be equal. Make the adjustment as indicated below.

a) Set the stitch length at a maximum.
b) Take out the rubber cap from the upper lid.
c) Loosen the clamp screw① and turn the machine until the needle tip and the upper part of the feed dog come to meet on the surface of the needle plate.
d) Adjust the crank② to make sure that the main and auxiliary presser foot touch the needle plate at the same time and fasten the clamp screw①.
e) After adjustment, place back the rubber cap on the upper lid.

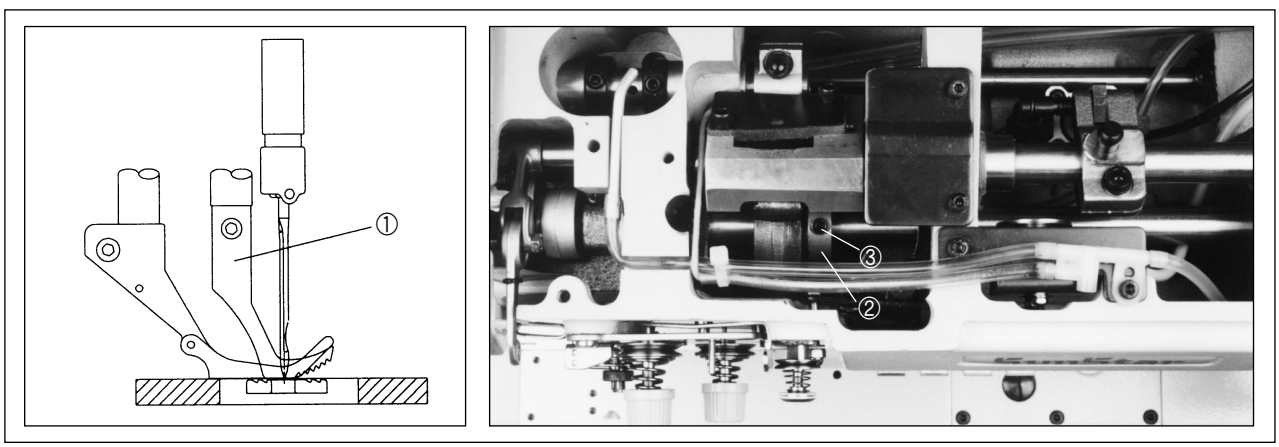


[Fig. 49]

C. Timing adjustment of the main · auxiliary presser foot and needle

As a standard, the needle tip enters the needle hole of the feed dog immediately after the main presser foot① touches the feed dog. Likewise, the main presser foot① comes apart from the feed dog right after the needle tip comes out of the feed dog. Refer to the following for adjustments.

a) Disassemble the upper lid with the dial set at "1".
b) Loosen two fixing screws of vertical movement cam② of the presser foot.
c) After securing the needle bar in the highest position, hold the No.1 screw③ of the cam② so that it faces up perpendicularly. Afterwards, tighten the cam-fixing screws.
d) Place back the upper lid after adjustment.



[Fig. 50]

16) Adjustment of the thread trimming device

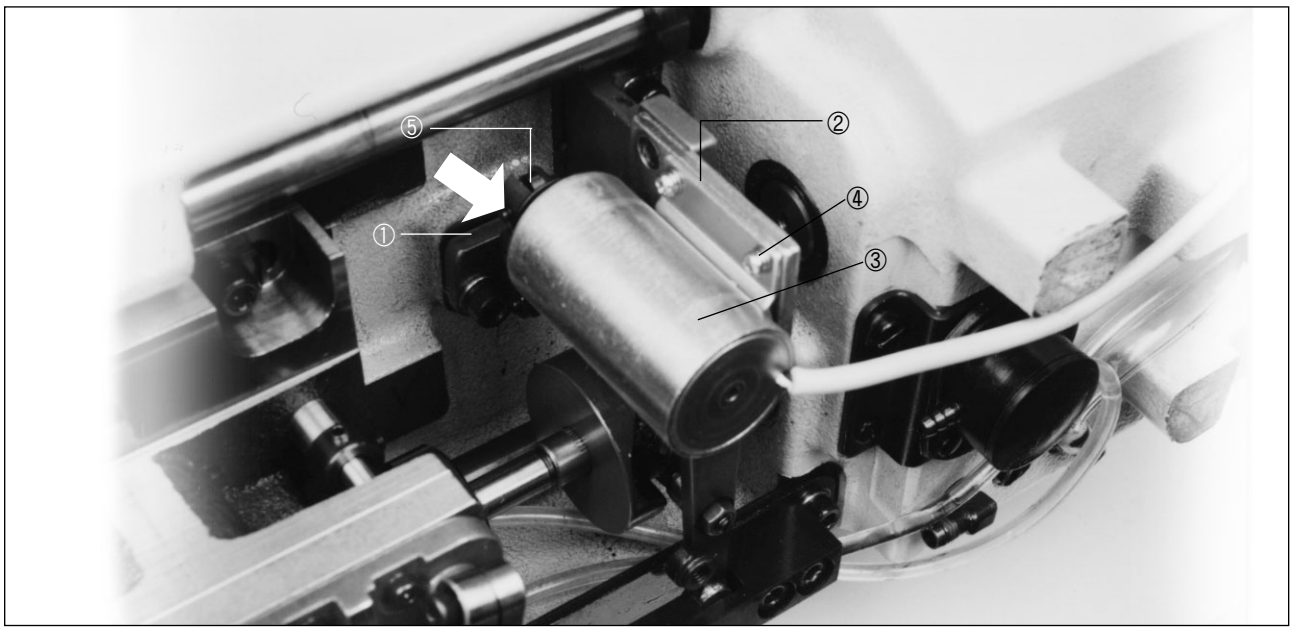
A. Adjustment of the trimmer driving part

a) Fixing the position of the trimmer solenoid (ass´y)

ⓐ After assembling the solenoid bracket② in the trimmer base①, tighten the solenoid③ using a clamp screw④.

ⓑ When the whole body of the trimmer base (in unit) is assembled - with the solenoid shaft assembled onto the clutch lever⑤ in a position where the trimmer shaft and trimmer shaft collar return to after having completed the trimming action, the solenoid stroke must be assembled at 8.5 mm.

ⓒ When the assembling is finished, check if the solenoid shaft returns quickly and smoothly to the original position when released from the arrow direction. If not, readjust the solenoid shaft by unfastening the clamp screw④.



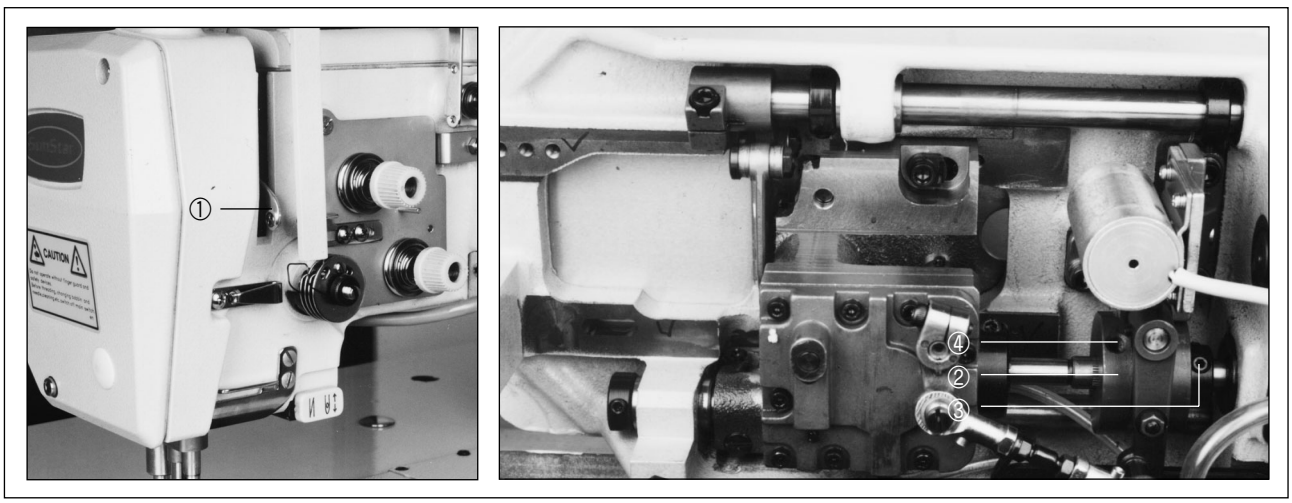
[Fig. 51]

b) Fixing the position of the trimming cam

ⓐ Turn the pulley manually to place the take-up lever① about 1~2 mm off of the lowest position.

ⓑ Adjust the position of the cam to allow the trimmer cam roller to smoothly enter the cam②. (Bring the stopper collar ③ to the right side of the cam②).

ⓒ Tighten firmly three fixing screws④ of the trimmer cam. Turn the pulley manually to check if the machine runs smoothly.



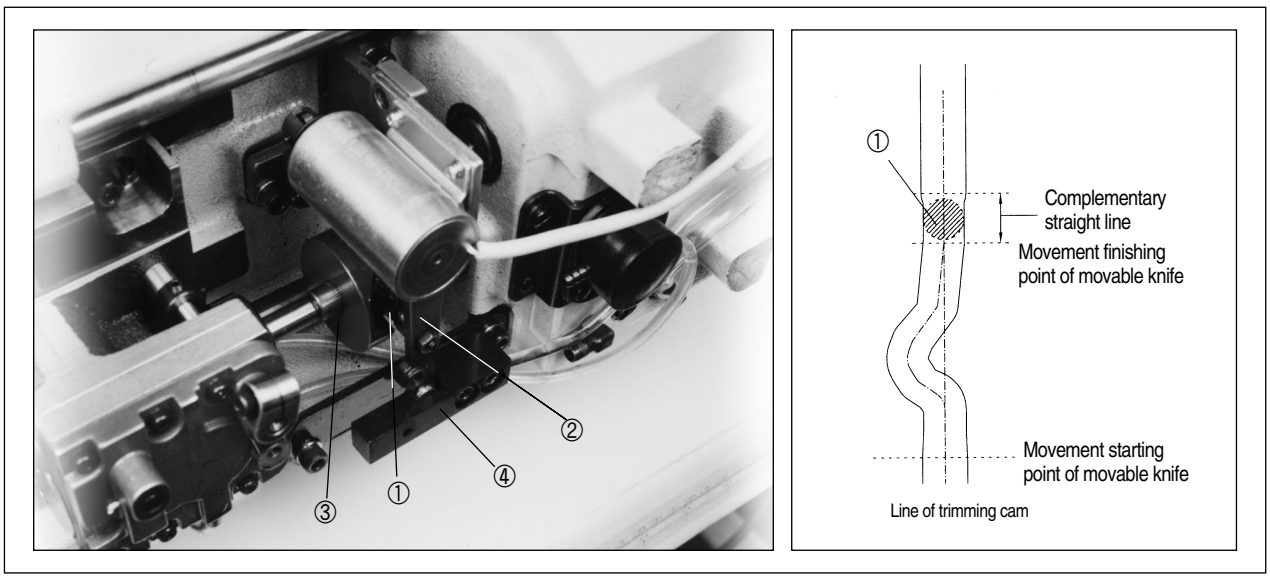
[Fig. 52]

c) Adjustment of the trimming stopper

ⓐ After trimming is finished for the trimmer cam leading, roller① must enter the range of the complementary straight line by rotating the pulley to place the trimming cam in the right position.

ⓑ While pressing down the trimmer shake linkage② to move the roller① to completely come inside the trimmer cam③,

- The right equal point of the roller should adhere smoothly to the right inside of the cam's complementary straight line and the left tip of the trimmer shake linkage should as well come inside the trimmer stopper ④ smoothly. Adjust the trimmer stopper④ to the left and right and fasten the holder clamp screws tightly.
- After adjustment, the trimmer shake linkage② should not move when shaken to the left and right (the roller is now inside the cam). Be sure to check if the shake linkage returns to the original position quickly and smoothly when released. If not, proceed with horizontal adjustment of trimmer stopper④.



[Fig. 53]

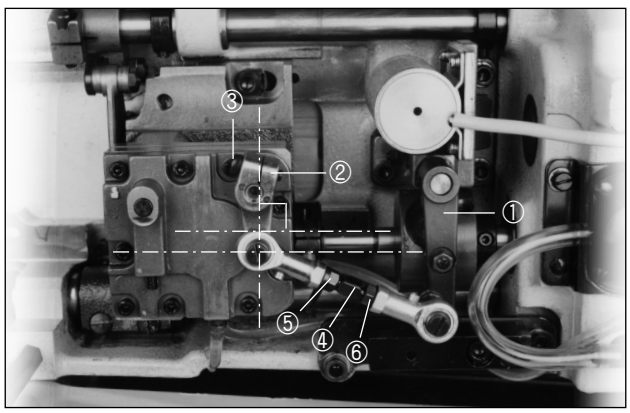
B. Adjustment of linking device for movable knife shaft in the trimmer driving part

a) After adjusting the trimmer driving part as described above, the trimmer shake linkage (ass´y)① must be returned to the original location after finishing the trimming movement.

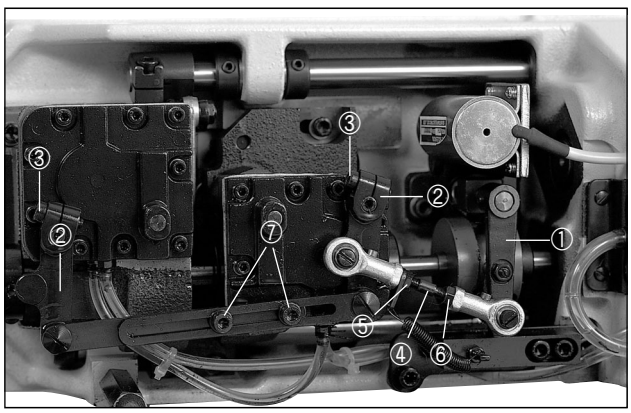
b) First, loosen the fixing screw③ of the movable knife shaft crank② and hold the crank down to a perpendicular direction. To maintain this position, adjust the length of linking bar④ of the ball joint assembled onto the trimmer shake linkage (ass´y) and firmly fasten the crank-fixing screw. (For model 1062BL, unfasten the clamp screw⑦ together)

(To change the length of the linking bar of the ball joint, loosen the left nut⑤ and the right nut⑥, and then turn the linking bar. A nut (left) is a left screw and a nut (right) is a right screw)

[1060BL]



[1062BL]



[Fig. 54]

C. Adjustment of the movable and fixed knife

a) Adjustment of the movable knife-edge and hook stopper

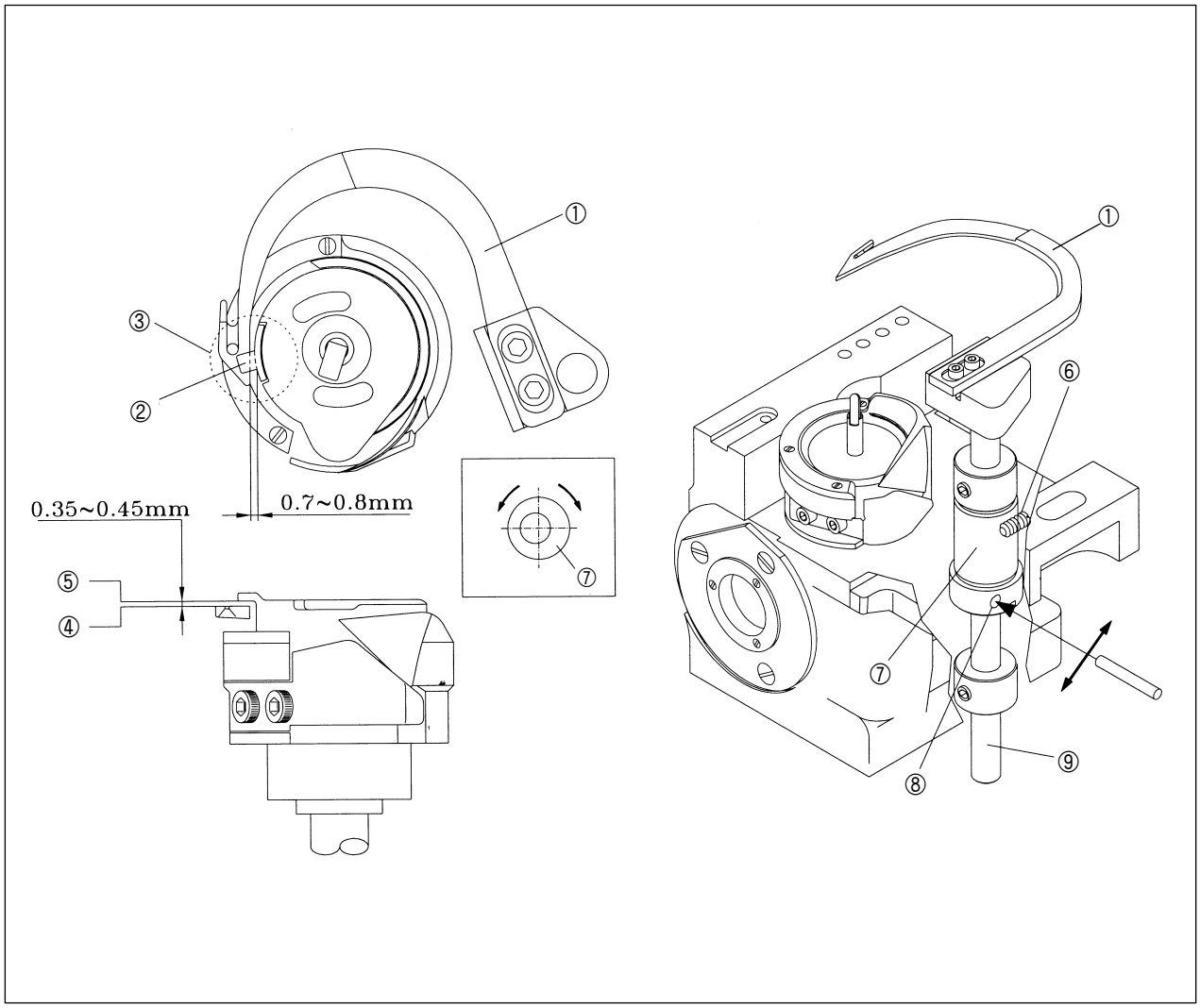
ⓐ When a movable knife① passes the front side of the hook stopper②, limit the clearance to be within 0.7~0.8 mm range as the picture③ shows. The upper surface of the movable knife-edge④ should be set up 0.35~0.45mm below the lower side of hook stopper⑤.

ⓑ Clearance adjustment of the movable knife-edge and hook stopper front side

※Loosen the needle plate and secure the hook stopper on the needle plate

※Unfasten the fixing screw⑥ of the movable knife shaft eccentric bushing⑦. Insert a thin driver or any adequate size pin into the hole⑧ of the eccentric bushing⑦ and turn it to the left and right. The clearance will be adjusted as the position of the movable knife shaft⑨ changes.

※After the clearance adjustment, retighten the bushing fixing screw⑥ firmly.



[Fig. 55]

b) Adjustment of the movable knife and fixed blade

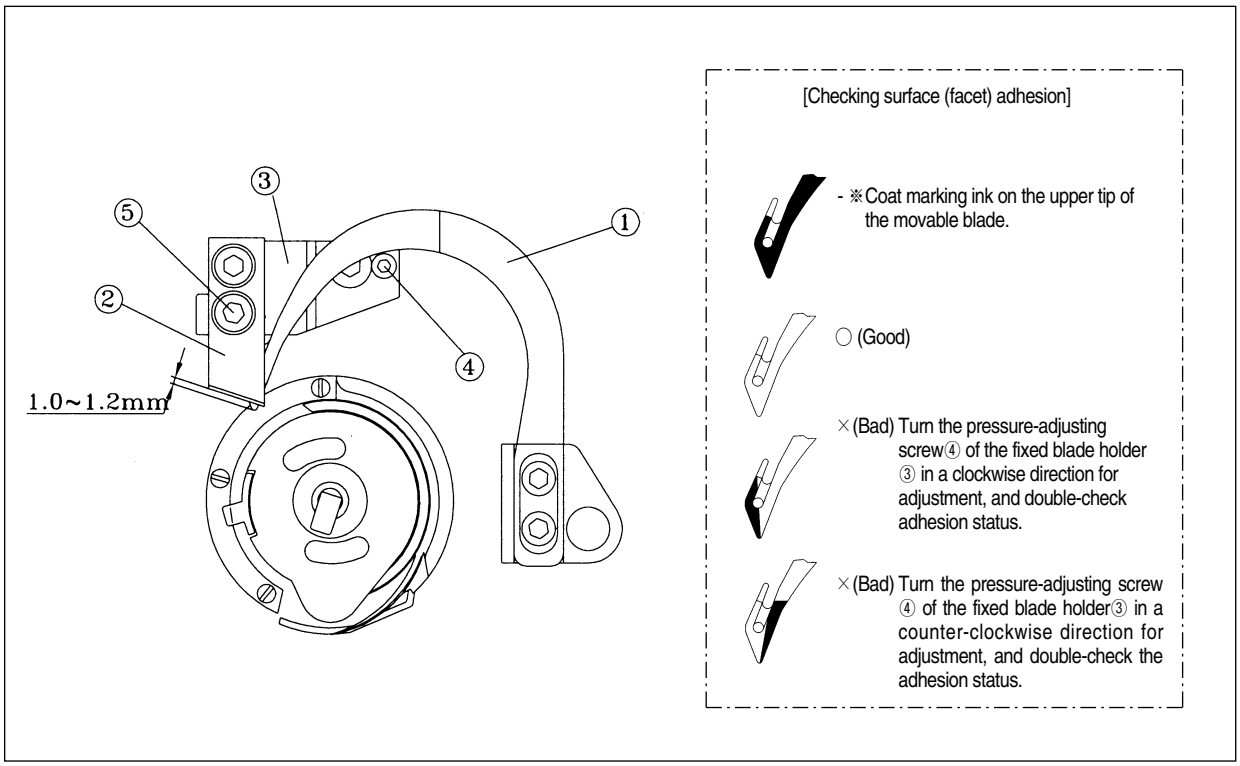
ⓐ The standard initial assembling position of the movable knife① is where the movable knife-edge protrudes 1.0~1.2 mm from the edge of the fixed blade②.

ⓑ Adhesive condition of the fixed blade② and movable knife① has a large bearing on trimming functions of the machine. Refer to the below picture for checking the surface adhesion.

ⓒ [Checking the surface adhesion of the movable and fixed blades]

Start manual trimming operation after painting marking ink on the upper part of the movable knife①. You can check the adhesion of the movable and fixed blades by checking the ink trace left on the surface of the movable knife. If adhesion is not acceptable, turn the pressure-adjusting screw④ of the fixed blade support③ to the left and right for pressure adjustment.

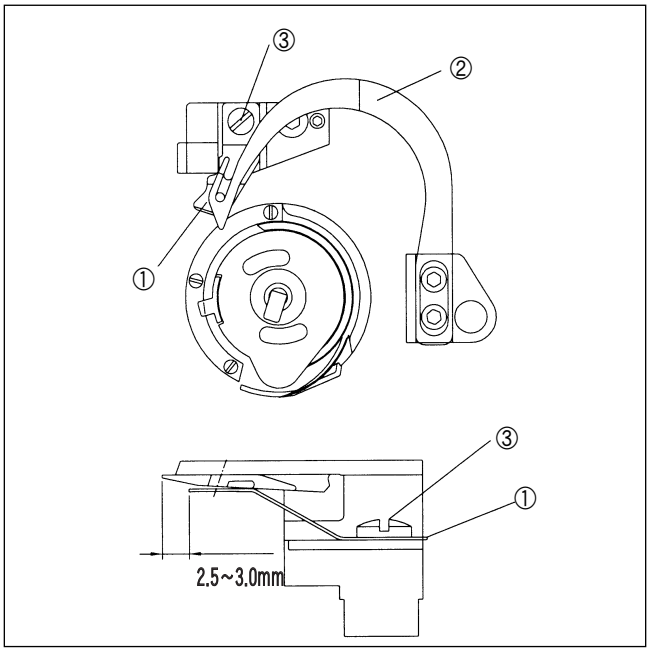
※ Caution) Forcefully turning the pressure-adjusting screw⑤ in a clockwise direction can break the fixed blade.


1.0~1.2mm
[Checking surface (facet) adhesion]
- ※Coat marking ink on the upper tip of the movable blade.
○ (Good)
×(Bad) Turn the pressure-adjusting screw④ of the fixed blade holder ③ in a clockwise direction for adjustment, and double-check adhesion status.
×(Bad) Turn the pressure-adjusting screw ④ of the fixed blade holder③ in a counter-clockwise direction for adjustment, and double-check the adhesion status.

[Fig. 56]

c) Adjustment of the lower thread holder

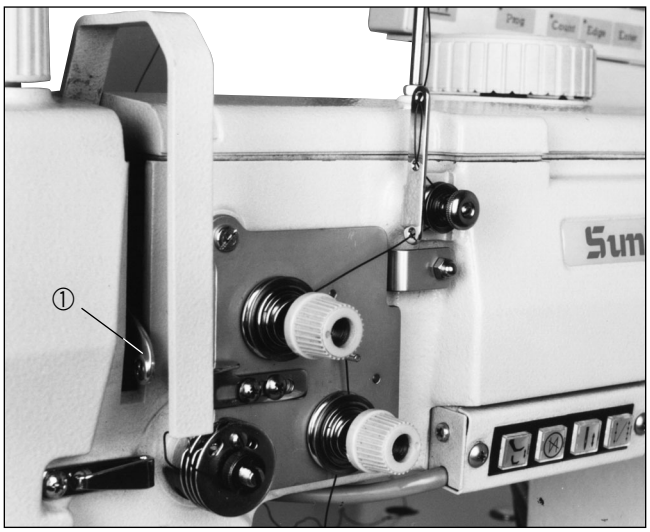
The whole side of the lower thread holder① must adhere to the lower side of the movable blade②. Also the lower thread holder① tip should be positioned 2.5~3.0 mm inwards off the tip of the movable blade②. For adjustment, unfasten the fixing screw③ of the holder and retighten afterwards.



[Fig. 57]

D. Checklist for assembly of other trimming devices

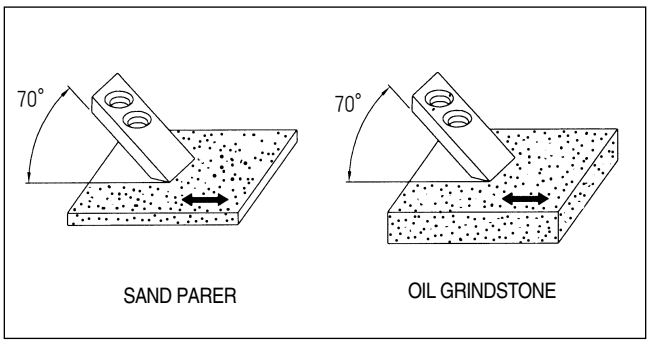
a) Checking the operation starting point of the movable blade during trimming when the movable blade begins to move by manual trimming operation, check whether the take-up lever① is sitting on the lowest point or 2.5 mm above the lowest point.



[Fig. 58]

b) Maintaining the fixed blade

Check the condition of the movable knife tip if thread does not break easily during operation or if the thread tip is untidy. When the blade tip is dull, use sand paper or oil grindstone to sharpen the edges.



[Fig. 59]

17) Adjustment of the thread tension release

The standard opening level of thread tension-adjusting disc① is 0.8~1.0 mm. Adjust the tray as described below.

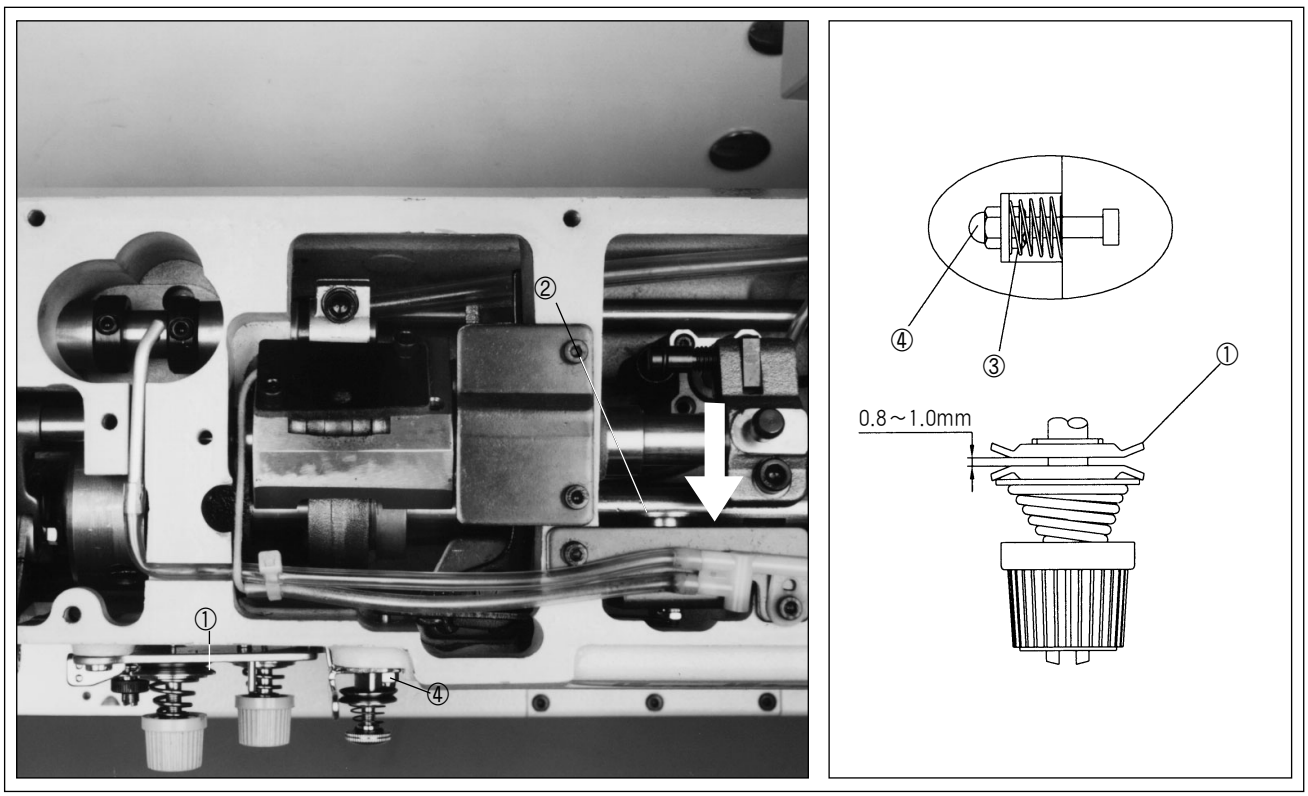
A. Disassemble the upper lid with the dial set at "1".

B. Push down the pressure bar lifter to lower the presser foot

C. Press the solenoid plate② towards the arrow direction

D. After loosening nut③, turn the cam nut④ around and check if the tray① opens to a width of 0.8 ~1.0 mm. Then securely tighten the nut③.

E. Reassemble the upper lid after adjustment.



[Fig. 60]

⚠ Caution

▶ When checking the oil level in the hook, keep your hands or oil flow checking paper away from any moving parts including transfer tools, to avoid injury.

18) Lubrication adjustment of hook

A. Checking the oil supply level of hook

After racing the sewing machine for three minutes, secure the oil flow checking paper on the right side of the hook and run the machine at a maximum speed for ten seconds. (You may use any type of paper) As shown in the figure, check the oil tape marked on the paper.

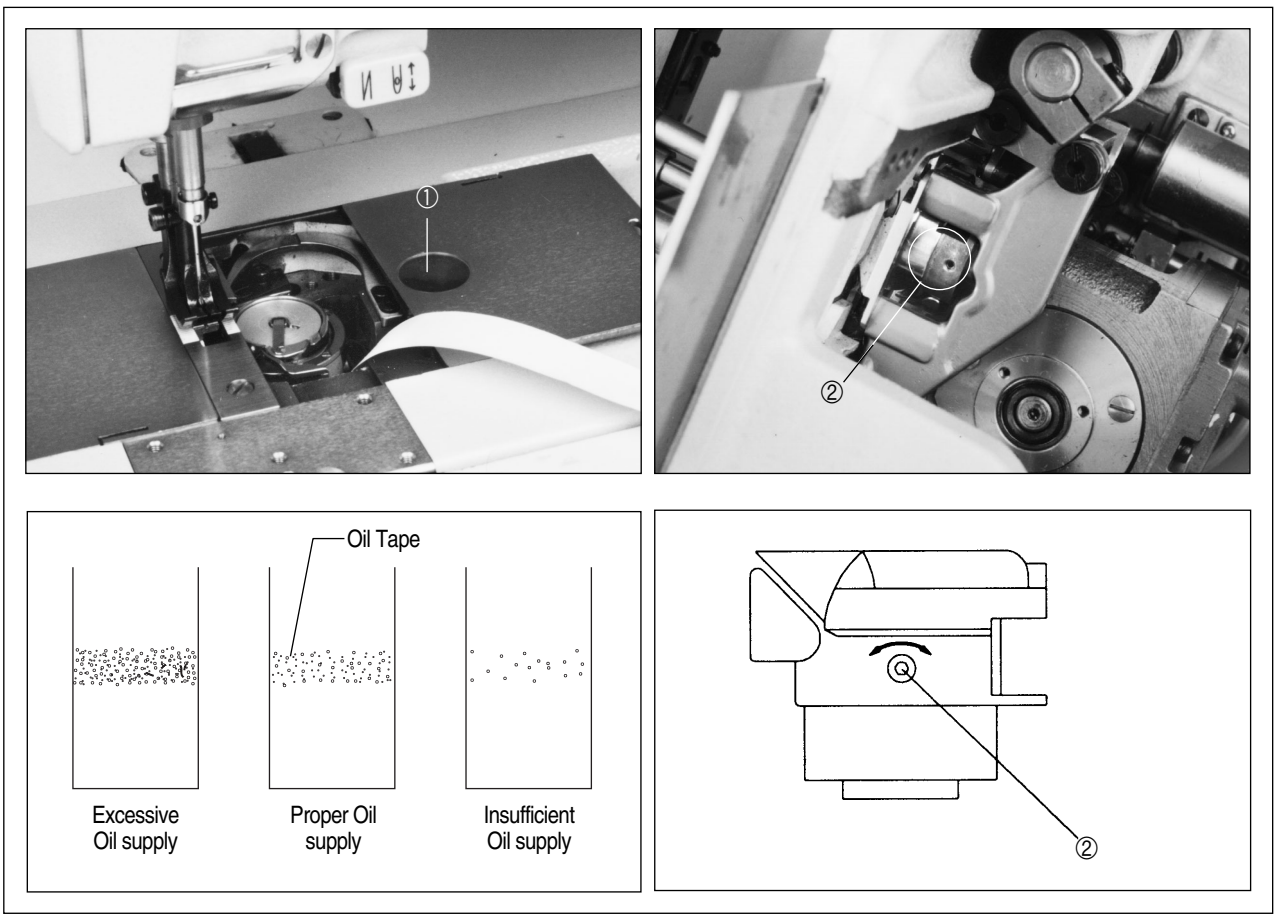
B. Adjustment of the oil supply level

Make the adjustment when the quantity of oil supply is not adequate.

a) Take off the sliding plate (left)①.

b) Turn the machine manually until you see the adjusting screw② for the oil supply level of the hook.

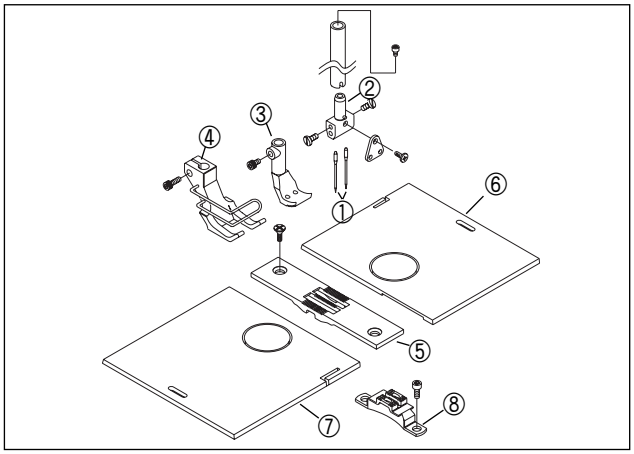
c) The amount of the oil supply will decrease when the adjusting screw② is turned in a clockwise direction, and increase when turned in a counterclockwise direction. Check the level of the oil supply after adjustment.



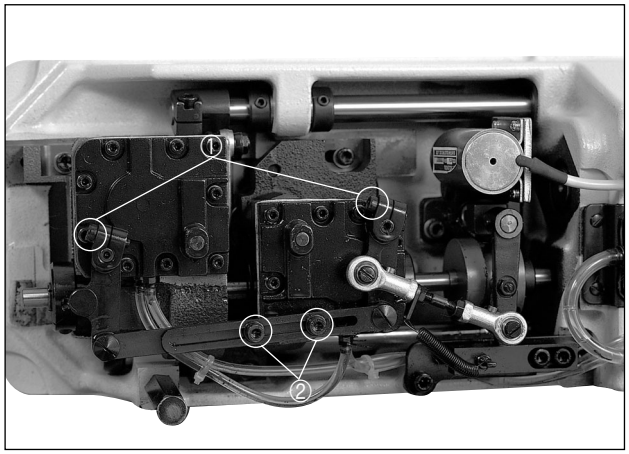
[Fig. 61]

19) Replacement of the gauge

A. Refer to the gauges shown in the SunStar Parts Manual when ordering a gauge for replacement.
B. Take out the gauge parts①~⑧ originally attached to the machine.
C. Unfasten clamp screws① and ② as illustrated in [Figure 63].

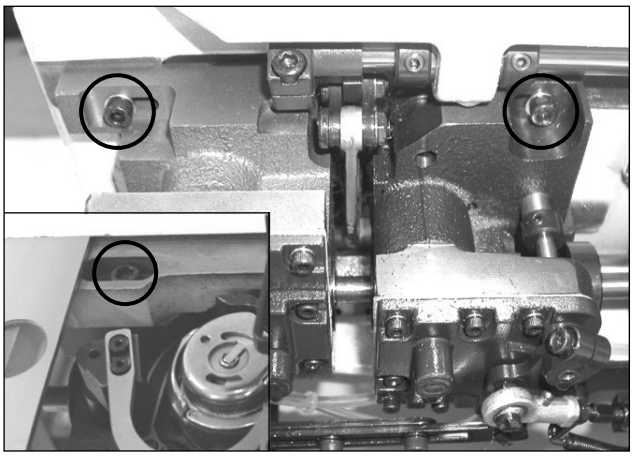


[Fig. 62]

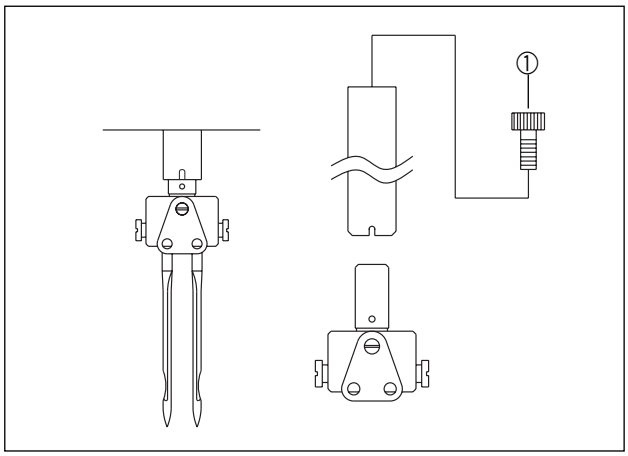


[Fig. 63]

D. Loosen four fixing screws on the left and right of the hook base as shown in [Figure 64]
E. Mount the new feed dog and needle plate.
F. Insert the needle plate into the groove of the needle bar as explained in [Figure 65] and fasten the clamp screw①.



[Fig. 64]



[Fig. 65]

G. Refer to the previous instruction for setting each gauge.

⚠ Caution

- ▶Only qualified and trained technicians should change the gauge.
- ▶Before replacing, always turn off the power switch and pull the power plug. If the operator mistakenly steps on the pedal with the switch on, the machine will start automatically and can cause injury.
  ※When using a clutch motor, be aware that the motor will continue to rotate for a while even after the power is off due to inertia. Proceed to work after the motor has come to a complete stop.
- ▶For gauge parts replacement, use parts specified by SunStar.

5 Cause of troubles and troubleshooting

1) Sewing machine troubleshooting

No	Symptom	Checkpoints	Root cause	Corrective action
1	Needle breaks	Direction and height of needle	Needle is inserted into wrong position	Reinsert the needle correctly
		Needle	Needle is bent	Change the needle
			Bad timing of feed dog	Adjust the timing of feed dog
		Ascending level of needle bar	Bad timing of needle and hook	Adjust the timing of needle and hook
		Height of needle	Bad timing of needle and hook	Adjust the timing of needle and hook
		Gap between needle and hook	Bad timing of needle and hook	Adjust the timing of needle and hook
2	Thread breaks	Threading method	Wrong threading	Thread the needle correctly
		Needle	Bent needle or broken needle tip	Change the needle
		Direction and height of needle	Needle inserted in the wrong position	Insert the needle correctly
		Upper thread tension	Too tight upper thread tension	Reduce tension of upper thread
		Lower thread tension	Too loose lower thread tension	Reduce tension of lower thread
		Working capacity of take-up lever spring	Loose upper thread	Adjust take-up lever spring
3	Stitch skips	Direction and height of needle	Needle inserted into wrong position	Reinsert the needle in the right direction
		Needle	Bent needle or broken needle tip	Change the needle
		Threading	Thread passing at wrong position	Change the needle
		Ascending level of needle bar	Wrong timing of needle and hook	Adjust the timing of needle and hook
		Height of needle bar	Wrong timing of needle and hook	Adjust the timing of needle and hook
		Gap between needle and hook	Wrong timing of needle and hook	Adjust the timing of needle and hook
			Remaining length of upper thread is short	Adjust the thread adjusting device
		Racing-proof spring of bobbin case	Due to bobbin racing during trimming, lower thread dropping from bobbin case becomes too short to go up	Change the racing protection spring
		Take-up lever spring	Unable to lift lower thread due to weak take-up lever spring	Adjust the working capacity of take-up lever spring

No	Condition	Checking Point	Cause of Trouble	Troubleshooting
4	Upper thread is not sunk		Too tight upper thread tension	Reduce tension of upper thread
			Too loose lower thread tension	Increase tension of lower thread
5	Lower thread is not sunk		Too weak upper thread tension	Increase tension of upper thread
			Too strong lower thread tension	Decrease tension of lower thread
6	Trimming errors	Tension of fixed blade	Tension not aligned between movable and fixed blade	Adjust tension of movable and fixed blade
		Edge of movable and fixed blades	Abrasion in blade groove of movable and fixed blade	Replace movable and fixed blade
		Direction of needle	Wrong needle insertion	Reinsert the needle correctly
		Crossing of trimmer cam notch mark and blade	Insufficient crossing quantity of movable and fixed blade	Adjust the stroke of movable and fixed blade
7	Upper thread is pulled out when sewing commences		Too strong upper thread tension	Adjust tension of upper thread
			Too thick a needle for thread	Check thickness of needle
		Up-stop position of needle	Take-up lever pulls out the upper thread because the needle up and down position is too high	Adjust the up-stop position of needle

6 Table drawing